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THE AMERICAN FARMER

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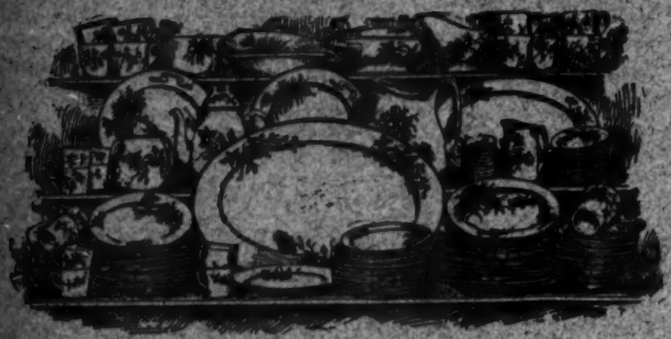

We have secured for the benefit of our subscribers a splendid set of Decorated China with gold band around the edge of the pieces. It is made especially for us at the largest and best pottery in the United States. We buy in very large quantities, and thus we are able to supply this elegant ware as described below. We are able now to make a grand combination of four different sets to choose from.

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The China will be carefully boxed and shipped by express or freight, the receiver to pay charges of transportation. Fast freight takes a little more time than express, but it is preferable, unless the goods are needed in special haste; because the charges are very much lower by freight, and, in fact, except to very distant points, amounts to but a trifle.

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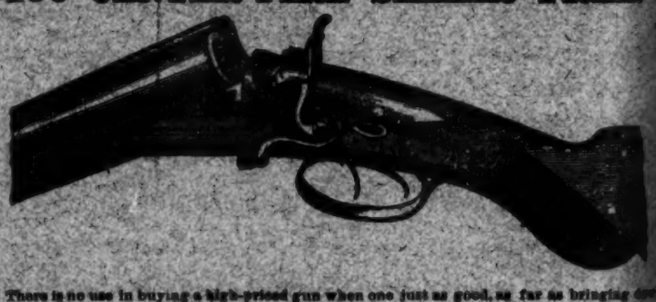

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THE AMERICAN FARMER.

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SILK CULTURE IN JAPAN.

AN INDUSTRY IN WHICH ALL MEMBERS OF A FAMILY ASSIST.

By Eliza Ruhamah Scidmore.

(Author of "Jinrikisha Days in Japan.")

THE GREAT silk districts of Japan are as nearly Arcadian regions as one may expect to find. In the hilly and mountainous tracts, where rice and tea cannot be so well grown, the mulberry thrives, and plantations of these trees are as carefully tended as any crops. The country is all cultivated like a garden, and the highway runs between patches of millet and wheat, with bamboo, pine, and mulberry groves contrasting their strangely-different foliage. In such park-like reaches dwell the most contented, intelligent, and prosperous communities in all Japan, and the silk farmer is a personage whose occupation speaks for his intelligence and a certain refinement of living. The little villages of silk growers that line the highways and dot the distance are the cleanest, best built, and best ordered in the Empire. The houses are large and exquisitely kept, and as one rides past their open fronts he has glimpses of the beautifully-polished floors, the fine, soft mats and spotless walls, and always the family groups intent upon their work. There is silk to right of him, silk to left of him, up the road and down the road, and almost in the air. Carts loaded with mulberry branches are being trundled into the villages, and carts loaded with the skeins of raw silk or bags of cocoons are going down to the seaport markets, or into the larger towns where there are steam filatures and factories fitted with Jacquard looms.

The homes of the silk farmers are like all Japanese houses, only on a much larger scale. The sliding screens are put back during the day, so that two or three sides of the house are wide open to the air, and a slatted, shutter-like arrangement in the solid walls provides for maintaining the same perfect ventilation and even temperature at night. The family life is secondary to the worm life of the establishment, and constant attention is given them. Every member of the family has some part in the care of the little white flocks that crawl and feed and sleep on tiers of trays, filling all available space, and every stage and process from the laying of the egg to the weaving and wearing of the silk gown may be witnessed in such a home.

The silk farmer may hatch out his own cocoons and let the white and brown moths lay their eggs at will, or he buys them from other farmers who make a specialty of selling eggs laid with a Japanese nicety and evenness, until a card of eggs look most like a piece of sandpaper. As soon as the white mulberry begins to leaf out in the Spring the silk farmers' work begins, and in a few days after being spread out on trays the sandpaper is alive with minute crawlers. In their infant stage, the worms must have their mulberry leaves chopped fine as dust, and every day they are moved to fresh trays of leaves. Their soft little bodies cannot be touched nor lifted with anything so strong and clumsy as the fingers, and they are either brushed aside with feathers or lifted with chopsticks. The children know how to use the chopsticks so deftly that these nimble little wands give them a lightness and surety of touch that we can never attain with any of our more elaborate and forceful implements. At all stages of their growth they lift the soft, fat white worms with a delicacy of touch that could not be felt by a soap bubble, and move them and transfer and separate them with the greatest ease.

The silk worm's five weeks of life are divided into five nearly even periods, crawling and eating voraciously for five or seven days, and then taking a 24 hours' sleep, while it sheds its old skin for a new and more elastic one, which it sheds at the end of another week of feeding. It repeats this process, eating its own weight of mulberry leaves every day, stripping a tray full of twigs as clean as a Kansas grasshopper could.

These pretty white, shining worms look the delicately-reared aristocrats they are, and do not give one the uncomfortable sensation of other worms as he watches them. That etiquet and decorum, which is in the very air of Japan, constrains them to a gentle and mannerly life. They never swarm off their trays and crawl

CHOPPING LEAVES AND FEEDING THE TRAYS

all over the house, but stay properly where they belong, sure that all their wants and wishes will be anticipated. Even the moths behave themselves and stay where they are put; fluttering their wings a little bit as they crawl over the trays provided for them, but never flying wild or attempting to escape the sudden death that is meted out to them when their eggs are laid. From generations of silk-raising ancestors the Japanese have inherited much of their skill in the management of silk worms and their intimate sense of the habits and freaks, the ways and wants of these systematic, orderly, and well-conducted little creatures. Their mission gives these pampered worms an importance and a dignity, and one can half believe that they have sense, intelligence, and individual characteristics instead of mere blind instincts.

Fresh air, an even temperature, and plenty of fresh mulberry twigs on clean straw trays are all that he asks for between his four long naps. Week after week he crawls and feeds in silence, growing long and round, sleek and waxen white, a two-inch creature, clad in fine-jointed mail. The slightest chill or draft, too great heat or a ray of direct sunlight from some open window wilts or kills him at once. Wet or damp leaves disagree with him at once, and if fed on inferior twigs, the leaves of the oak tree or the wild mountain mulberry, he testifies to it in his winding sheet. The harsh, strong thread of which Japanese yamamai and Chinese pongee are woven is

the result of an oak-leaf diet, and any silk farmer may change the quality of his skeins at will. These delicate creatures, with their fastidious tastes, wreak mortal revenge on anyone who brings them into the world to neglect them, and eternal vigilance is one price of silk. Rats, mice, ants, roaches, and birds regard them as dainties, and one can fancy a turkey cocking his eye at any such fat, white sweet meat.

In any house in the silk districts one may take object lessons in every branch of the business. There are 50,000 eggs to the ounce, and in many houses several ounces are hatched out at a time all through the Spring and Summer season. Women and children are at work from sunrise to midnight, chopping leaves, filling trays, transferring the worms to fresh pastures and removing the rubbish. Mulberry twigs are sorted at night for the early morning meal, and are brought in by cartloads each morning. At the roadside tea houses, where one stops to rest his runners, the little maids patter out with the tea tray and then run back to their work with the worms. They show one about the establishment with great pride, and betray the most charming and innocent delight in a stranger's amazement and mystification.

TENDING THE YOUNGEST WORMS

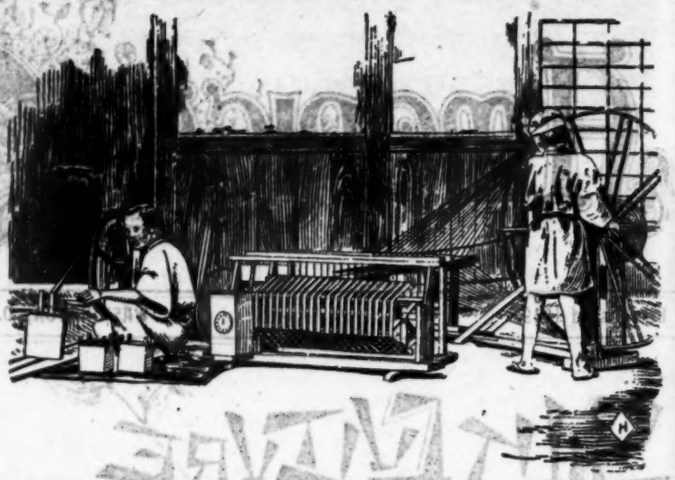
It is a fine study in political economy to see a whole such patriarchal establishment engaged in the one pursuit, everyone, from grandam to smallest toddler, doing something for "the honorable worms." It is a clean, light, and interesting work for the women

REMOVING THEM FROM THE EGG CARDS AND CHOPPING LEAVES

and children, and, like all the most serious vocations in Japan, seems part of a pretty play and means for artistic posing and grouping. Their quiet voices, their pretty manners, and their delicate slight-of-hand touch especially fit the Japanese women for such tasks as tending the helpless, silent little spinners, and one fairly forgets the utilitarian side in watching their ministerings. The worms as often seem divine charges, transformed souls committed to their care, and the careful tending, the fresh offerings of food, seem but rites of their Buddhist religion. As silently and seriously as priestesses do some of these women move about the vast, shady rooms, lined with tiers of trays piled with mulberry twigs; and the little girls, so gentle and decorous even in their play, could not display better manners in the temple. It is charming to watch the children doing their part in ministering to the "honorable worms," and if the raising of silk worms has anything to do with developing such gracious and charming children as grow up in Japan, let us turn every public schoolhouse into a silk-raising establishment at once.

After their fourth and last nap the worms eat with a will, gorging themselves from dawn to midnight, and then begin spinning their winding sheet. It is interesting to watch them in the different stages of spinning, some concealed in only a gauzy vail made of loop after loop of finest filament, and others cased in a solid armor. Then the twigs hang full of strange fruit, and the women gather it by the basketful, sorting the colors and qualities beforehand. The cocoons are steamed for 15 or 20 minutes to kill the grub within, and for weeks they are spread on mats, turned and tossed until thoroughly dry.

In this day less and less of the silk is reeled at home, the silk farmer sending his cocoons to the nearest town where there is a steam filature, or selling his cocoons as they are. But in the remoter places, and for any silk which she may wish to use in the household, the skilful housewife more often reels it herself. She throws the cocoons in boiling water, and agitating it for a few minutes with her hand, gathers the almost invisible threads with her sensitive finger-tips and leads them along to the airy wheels that soon whirl skeins of shining floss from wheel to wheel and masses the filaments into glossy twists of an even weight. It requires the most delicate touch and the most even and certain movements to reel from the cocoon, and in most communities there are women of exceptional skill who do nothing but reel, going from house to house the year round. After the grub is killed the cocoons may wait for anytime until the reeler can come, and the days when the cauldron simmers



REELING SILK FOR MARKET

and the big wheels whirl are gala ones in each household. The introduction of machinery has done away with much picturesqueness, and this pretty process is not to be watched in every house in a silk district as heretofore. These silk reelers are the most expert and naturally the best-paid workers in silk districts where the wages of those who receive a fixed remuneration range from eight to 20 cents for a day's work of 18 hours. All the small economies of Japanese living, the interdependence of industries, help to make silk culture the most profitable rural occupation in Japan, and each individual in a community of silk growers has inherited much of his skill and his peculiar insight into the condition of worm life. The women reel and weave silk during the months when the mulberry trees are bare, and the men pursue other avocations in those resting spells. The litter and refuse of the worms fertilizes the soil which grows their food, and the mulberry twigs are utilized in manufacturing a coarse paper which takes the place of glass and cloth in the household economy. Every process and everything connected with the care of the worms is dainty and precise, and marked by exquisite cleanliness, system and order. The demand never ceases, the market is never overstocked,

WEIGHING THE COCOONS

and besides the 30,000 bales of raw silk and cocoons shipped to foreign countries, Japan has been regularly exporting silk worm eggs since the plague among the worms of France and Italy some years ago put such a blight upon the industry in those countries. Japan produces over $37,000,000 of silk annually. The silk market is as important as the stock market, and has its daily cable quotations. The silk broker is a most important and prosperous personage, and after gold and gems, silk in bulk has the greatest inherent value, and is taken as good collateral security as readily as real estate. When silk is moving $2,000,000 worth is often sent by a single ship, and mail steamers wait for days, if it is raining, until there is suitable weather for loading such a precious cargo.

Good butter makes many kinds of food "go down" easily.

RAPE.

A Crop of Immense Usefulness to the Farmers of the Northern Portions of the United States.

BY THOMAS SHAW.

[Professor of Agriculture, and Farm Superintendent of Ontario Agricultural College.]

MOST CHEERFULLY do I comply with the request to write an article on the growth and uses of Rape. I have much faith in the future of this crop, more especially in the northerly portions of the United States and the southerly portions of the Dominion of Canada. I have more than once mentioned that it is my firm conviction that at no distant date more than 10,000,000 lambs will be fattened on rape in the United States. This statement will not seem extravagant when we consider that all this could be accomplished by growing rape on less than 1,000,000 acres of arable land; in other words, all the lambs produced in the greatest of all Republics since the world began could be fattened on rape grown on the one-twenty-thousandth part of her territory.

Rape has been grown in Ontario for several years past, but only by a very limited number of the farmers, and in a very small way. And many of those growing it have manuvered so far as they could to keep the light which they possessed from reaching their fellows, actuated by the indefensible principle that selfishness is fair.

LAMBS FEEDING UPON RAPE.

The attention of the writer was called to rape culture while thinking out the problem of cleaning a five-hundred-acre farm that had been litteraly overrun with many of the most pestiferous forms of weed life. This was a little more than three years ago. Since that time our experience in growing rape and fattening lambs upon it has been somewhat extensive. In 1889 we grew 12 acres at this station, in 1890 54 acres, and some in addition as a catch crop, and in 1891 40 acres, with several acres also as a catch crop. This present year we are preparing to grow 45 acres or thereabouts, and a large acreage as a catch crop. In 1889 we fed 48 lambs upon it, in 1890 537 lambs and 17 heavy steers, and in 1891 666 lambs.

Rape bears a close resemblance to the Swede turnip in appearance, with the difference that the former has a fusiform root without any bulbous portion. The edible portion consists wholly of stems and leaves. It grows ordinarily from one to two feet high. It possesses fattening properties of a very high order, insomuch that lean lambs may be made fat by pasturing upon it for two to three months without any grain ration supplement.

Rape is best adapted not only to temperate climates, but in all probability the northerly half of these, although it may yet turn out that it may grow well in the southerly portions when it is grown later in the season. It should render excellent service in warm latitudes, where the sheep might pasture on it the whole Winter through, providing they are possessed of climates sufficiently moist to promote growth at the time when the seed should be sown. In this latitude it will not come through the Winter in good form.

Rape will grow well in any soils possessed of the requisites to grow a good crop of corn or turnips. But it is peculiarly partial to black loams or humus soils, and is least well adapted to be grown on stiff clays. In muck swamps, sufficiently dry, it grows in finest form.

In the rotation, when grown as a pasture, it comes naturally between two crops of grain, but as a catch crop it may come anywhere in the rotation. It grows nicely where the roots may feed on the decaying organic matter in overturned sod lands.

When preparing the soil the rotation will exercise an important influence. When rape is the only crop grown, thorough Spring cultivation, preceded by Autumn cultivation for destroying weeds, should give excellent results. By thorough Spring cultivation I mean plowing deeply in the Spring and then harrowing or cultivating the ground as often as may be necessary until sowing the rape. By Autumn cultivation I mean, in a general way, gang-plowing the ground just after harvest, and harrowing it occasionally between that time and the Autumn. We usually grow rape after having reaped a crop of rye cut in the green stage and cured it as fodder or for the silo. The ground is at once plowed, rolled, harrowed, and made into ridged drills and the rape sown in the drills. The drills are made with the double-moldboard plow where such an implement is used, and they should be low rather than high, which implies that the plow should not go down so deeply as to bring up the rye stubbles. The only real difficulty with us in growing rape is to get the seed to germinate at that season of the year (July 1).

The best fertilizer for rape in this country is farmyard manure. It will give enormous crops with us when the land is well manured, but we have grown fair crops without applying any. The same artificial fertilizers as are used with turnips will answer well for rape.

The most suitable time for sowing in this climate is the latter part of June or the first part of July. In going southward it will probably be found that a somewhat later season should be chosen, as rape matures best in cool weather. When sown as a catch crop this may be done as soon as possible after the removal of the crop previously grown.

The mode of sowing depends upon the object sought. When grown for pasture simply on clean land, it may be sown broadcast at the rate of three to five

pounds per acre, but when weeds are to be destroyed, it should be sown in drills with the turnip seeder, at the rate of one to two pounds per acre, and cultivated; when sown as a catch crop, to be pastured or plowed under as a green manure, it is usual to sow it broadcast.

The only variety grown in this country is known as the Dwarf Essex, and the seed may be had of any of our leading seedsmen at a cost not exceeding 10 cents per pound. I think I am right in saying that there is no duty on rape seed going into your country.

The cultivation will depend on the mode of sowing; when sown in drills it may be similar to that given to corn, and the effects are equally beneficial. We do not thin it as we do turnips, but where a clean job is to be made in weed destruction, it should be gone over once or twice with the hand hoe along the line of the drill.

During the three years that we have grown rape at this station we have conducted many and varied experiments relating to its growth, and to the uses to which it may be put with advantage. The simple enumeration of these experiments would be profitless, and to give the details would require much space. This much may be said here, however: We have found that flat cultivation in drills gives somewhat larger returns than ridged cultivation; larger crops can be secured from rape grown in drills than when grown broadcast; that grain is usually not found of much benefit when fed to lambs pasturing on rape, and that rape and old meadow pasture are superior to rape alone as a pasture for lambs.

Rape is very valuable as a pasture where it will grow well, not only because of the amount of food which it furnishes, but it comes at a season when grass pastures are scare and often parched. Intrinsically, it is more valuable for fattening than clover, and as a crop after rye grown the same season, we have obtained from 10 to 15 tons per acre. It weighs like lead, and so do the lambs fed upon it. Feeding upon rape alone, good lambs will increase in weight about 10 pounds per month. We have found that one acre of rape grown as a crop after rye, after the manner already described, will pasture 10 to 15 lambs for two to two and a half months.

The lambs shown in the accompanying sketch are a lot, the major portion of which were bought in Prince Edward's Island, nearly 1,200 miles from here. The artist in sketching the lambs has fallen into the sin of many of his guild; that is to say, he has flattered the lambs in the sketch. There were about 500 lambs feeding in the field at the time the sketch was taken. We have secured very gratifying results from the fattening of these lambs. We fed in all 666 lambs on, say, 43 acres of rape, and had a profit of nearly $700, not taking into account the value of the rape, the attendance, and the manure. A bulletin with full details of this experiment is now going through the press.

As a catch crop rape may be grown to any extent, but it does not give results so satisfactory as a pasture when sown late. Grown in drills after Winter wheat had been reaped in 1891, it gave pasture for 60 lambs for 25 days, without any other food or drink, but the lambs make the best relative gains on rape sown about July 1, and that is ready for pasturing when well grown; that is to say, about the middle of September.

As a soiling crop it is not unlikely that there is a future for the rape crop. We have found that when put up in small heaps, about Nov. 1, it will keep for weeks in this climate, and that it may be used in feeding milch cows when fed once or twice a day after they have been milked.

As a green manure there is a splendid future for rape in latitudes where it will grow well, as it will continue to grow after the time of early frosts. The seed is cheap and the roots ramify in the soil.

As a cleaning crop rape is simply invaluable. Owing to the late season at which it may be grown, there is time for cultivating the land with a view to weed destruction for a long season before sowing the rape, and then the cultivation of the rape puts the weeds into great tribulation. At this station we have taken fields foul with the Canada thistle and other equally baneful weeds, and have completely obliterated them in a single season, getting at the same time a crop of rye and a crop of rape.

Rape furnishes good food for sheep and lambs, for beef cattle, and for swine, and, as already stated, it may yet turn out that it can be used for soiling milch cows. All these classes of live stock are ravenously fond of it; but pasturing rape is not unattended with danger to the animals. Those who intend growing it should read the above sentence over three or four times. I don't want them ever to be able to say that that Canadian laid a snare for them, by giving them much of the sweets concerning rape without any of the bitter. Animals are so fond of rape that if put in upon it hungry they will eat too much of it. Bloating may ensue and scours are sometimes produced. The animals put upon the rape should therefore never be turned in upon it when hungry. When sheep are pastured upon it they may be turned into it and then left upon it, except when the weather is very stormy. There is greater danger when the crop is immature and in times of frost. Sometimes the sheep get upon their backs and die. They are the more liable to this as they become fat. They should have access to salt at all times, and if they can go into an old pasture at will, the conditions will be more favorable.

I fail to see why a great industry should not arise out of the rape problem in the United States. There need not be a shadow of doubt as to the adaptability of large areas for growing rape all along the northern boundary line. If it should turn out that in the States southward from these that it will also grow well, then the lamb-fattening problem will be practically solved, for in the fertile areas of these regions the hardy lambs of the ranches may be given a finish, and cheaply, such as was never thought of before. If it should be deemed advisable to carry on the feeding of the lambs into the Winter season to obtain higher prices, then the rape is none the less helpful in fitting them for this purpose, more especially if they were lean when they were first put upon the rape.

If this paper should be the means of leading anyone to experiment with growing rape, to such I desire to say, proceed cautiously at first. Ascertain whether your soil and climate are adapted to its growth, and also how to grow it. Then, if all things point in the direction of success, lanch out into its cultivation ever so freely, but not till then.

SUGAR-BEET CULTURE.

Prospects of this Year's Crop Very Promising in California—Delayed by Wet Weather in Nebraska.

EDITOR AMERICAN FARMER: We are now able to form a very approximate estimate of the total number of acres of sugar beets which will be grown in the United States in the current year.

In Nebraska the Oxnard Beet Sugar Company have contracts for beets which, with the acreage planted by themselves, will make up the following total: Grand Island Factory, 2,500 acres; Norfolk, 2,500; total, 5,000.

The data received from California supply us with the following statement: Chino Factory, 4,000; Watsonville, 3,000; Alvarado, 2,000; total, 9,000.

The number of acres being grown for the Utah Factory is 2,500; so that the approximate extent of sugar beets grown in all the beet districts of the United States this year will be 16,500 acres.

From California we hear that the crop is very promising. There are beets upon the Chino farms which have already a diameter of two inches. The manufacturing season will commence in California, at the latest, July 15.

The extremely cold and wet Spring has delayed the operations of preparing the ground and putting in the seed in the beet fields of Nebraska. The planting has been put back quite 14 to 21 days later than was anticipated in the month of March. The ground, however, is moist and in a mechanically favorable condition, and should the seed be put in at once and warm, genial weather follow the planting, an excellent crop will be grown. The work of preparation generally is being much more thoroughly attempted this season than previously. The companies are discovering that the cultural problem is the whole matter. The factories are equipped to handle the crop, but it is the "crop" that is needed.

Reports from Europe state that the beet planting has been progressing under favorable climatic conditions. Planting in most of the beet regions of Europe has been accomplished at an earlier date than was possible last year. That is a sign of great promise for the cultural year. It has been observed on a broad scale that the early-planted beets give the highest value of results.

The probable acreage under beets in Europe will vary very little from last year. The acreage of Germany and Belgium may be slightly under last year, but France, Russia, Austria, and Bohemia will somewhat exceed their extents of the previous year. Attempts are also being made to extend beet culture to Switzerland and England, whilst Spain has already made some progress in the work.

So far as the actual acreage of sugar beets being planted this season will enable an approximate estimate to be made, it appears that the world's supply of sugar from the source of the sugar beet will not vary greatly from that of last year. Later observations will show us how great the difference will be.—W. MAXWELL, Schuyler, Neb.

About India Silk.

One of the prettiest materials for Summer wear is India silk, although many people who would buy an expensive gingham or other wash goods imagine that they cannot afford one of these pretty dresses. In reality the best kind of India silk is economical, because it is as cool as any of the wash fabrics, and in reality will wash as well as any of them. It is nicer looking, more dressy, and prettier in every way. It does not shrink, as will cotton fabrics. These goods will perhaps keep their color better by being carefully sponged, as cloth made of wool is in the Fall and Winter. A good India silk will not fade on exposure. When one does it is because it is not all silk. If there is any thought that they may not endure the light, it is a good plan to take a small piece and ravel it, then set it on fire. If all silk it will not blaze, and this will always tell the story. The material which fades is usually what we know as jute, and it is impossible to dye these so as to retain the color. Body Brussels carpets are often made cheap by the use of jute, and this is the reason that some of them fade so soon after being put down in sunny rooms. Years ago to have a body Brussels carpet was to be sure to have something that would endure for years under exposure and constant wear.

Many of the prettiest and newest Spring materials are changeable silks. These are not plain but figured, many of them in very quaint designs. The India silks, perhaps, were never prettier, and they are very serviceable, as everybody who has ever worn them knows, being suitable for all kinds of Summer wear.

An Historic Plow.

All of us who have read the history of the Revolutionary War have come across the paragraph telling of Gen. Israel Putnam, "Old Put," leaving his plow in the furrow when the news reached him that the British had attacked the Americans at Lexington, and unhitching his horses sent one in the barn, and mounting the other rode in post haste to Boston. It may be well to know that this most valuable and historic plow is now used as a trade sign in front of the store of a hardware dealer in Danielson, Windham Co., Conn. The plow, like all those made at that period, is a clumsy implement. Its frame and mold-board are of wood, which show the effect of time. It is plated with scraps of iron, and it has a joint and cutter of forged iron.

PROGRESSIVE AGRICULTURE.

The Most Recent Discoveries, Developments, and Ideas in the Science of Farming.

Effects of Different Fertilizers on Tobacco.

THE INFLUENCE of fertilizers on tobacco has already been discussed in these columns in a general way, and the burning and other properties of the product as influenced thereby set forth. The latest published results of experiments in this direction are from the Agricultural Experiment Station of Virginia. Five sets of experiments were made with different mixtures of fertilizers and the results compared with those obtained on an unfertilized plat of similar soil.

The unfertilized plat yielded of the various grades of leaf a quantity of material which had a market value of $83.98.

Plat one received per acre the following fertilizing materials: Sulphate of ammonia, 50 pounds; dried blood, 80 pounds; sulphate of potash, 120 pounds; acid phosphate, 114 pounds. The money value per acre of the yield of this plat was $131.20.

Plat two was fertilized with the following mixture: Nitrate of soda, 72 pounds; dried blood, 80 pounds; sulphate of potash, 120 pounds; acid phosphate, 114 pounds. This plat gave a crop worth $127.90 per acre.

The third plat was treated with the following mixture: Dried blood, 160 pounds; sulphate of potash, 120 pounds; acid phosphate, 114 pounds. The money value of the crop per acre from this plat was $146.60.

The fourth plat received the amounts of fertilizers per acre indicated below: Nitrate of soda, 143 pounds; sulphate of potash, 120 pounds; acid phosphate, 114 pounds. The money value of the crop was $130.14.

The fifth plat was fertilized as follows: Sulphate of ammonia, 100 pounds; sulphate of potash, 120 pounds; acid phosphate, 114 pounds. The value of the crop per acre was $109.63.

The soil in which these plats of tobacco were grown was of easy tilth and drainage, and of fair, but not very great, water-holding capacity. The land was well prepared by several plowings and harrowings during the Winter and Spring. The fertilizers were applied by sowing broadcast half the quantity allowed each plat and by drilling in the remainder. The variety planted was Long Leaf Gooch. The hills were three and a half by three feet apart. The plants were set May 28. Almost a perfect stand was secured. The season was remarkably favorable. The harvest took place Sept. 5–20. The fertilized plats were ready for harvest nearly two weeks before the unfertilized—an important observation, when it is considered how often late plants are injured by frost.

Deducting from the money values of the crops on the various plats the cost of the fertilizers, it is easy to determine the net profit or loss due to the use of fertilizers.

This is best seen when arranged in tabular form.

No. of Plat.	Cost of Fertilizer per Acre.	Value of Crop per Acre.	Net Profit per Acre.
1	$8 28	$131 20	$96 97
2	8 25	127 90	33 97
3	8 25	146 60	52 97
4	8 25	130 14	35 91
5	8 25	109 63	15 40
6 (Unfertilized.)	....	85 98	.....

These data are only for one year, and that year an exceptionally favorable one, and it would be unwise to make deductions from them of a too general nature.

In regard to the one set of experiments, it is noticed that of the nitrogenous fertilizers, dried blood gave the largest yields and largest financial returns.

On those plats where dried blood and nitrate of soda were used in combination, there was less "firing" from the Summer drouth than on any of the other plats. The nitrate of soda thus appears to have a favorable effect in retaining moisture in the soil—a property which might be expected from the highly hygroscopic character of this salt.

Tobacco growers who are in the habit of moving from one plat of ground to another when soil exhaustion causes a failure of a remunerative crop, will do well to study the above data. Tobacco is pre-eminently a crop which will pay for intensive culture, and the proper feeding of the soil to secure remunerative returns is an art worth acquiring.

Potash as a Fertilizer for Maize.

Occasion has already occurred in these columns of pointing out the value of potash for maize as determined by the valuable work of the Kentucky Experiment Station. In discussing the data there obtained, it was stated that the conclusions reached could apply essentially only to soils of the nature of that locality. There was strong presumptive evidence of the fact that potash would prove advantageous with other soils and in other localities, but absolute demonstration of this was still wanting. The experiments lately conducted on this point in Massachusetts, and just published in a bulletin of the Hatch Experiment Station, fully bear out the reliability of THE FARMER's predictions. It was found that the addition of nitrogen in the usual amounts per acre, gave an increase of only 1.96 bushel per acre. Combined with phosphoric acid, it gave 6.63 bushels increase; while with muriate of potash it gave 20.92 bushels increase. This is certainly an instructive lesson in the use of nitrogen, the most expensive of fertilizers. The practical farmer at once sees clearly from the above data that it is nothing but a loss to apply an expensive nitrogenous fertilizer alone to land to be devoted to maize; while on the other hand, it will bring a large return if potash be combined with it. In the above experiment the increase noted is due to the nitrogen as determined by direct comparison with a neighboring plat containing the same amount of potash. Potash, therefore, not only is an important immediate fertilizer for maize, but it is also as equally important in making other and more expensive fertilizers available.

Experiments with phosphoric acid, applied in the same way, showed the following results:

Applied alone, it caused a loss of 0.36 bushel per acre. In combination with nitrate of soda, there was a gain of 4.31 bushels per acre. With muriate of potash, there was a gain of 13.65 bushels per acre.

In the above data the same result is seen as in those first quoted, but not so pronounced. In other words, nitrogen is more profitably mixed with potash than phosphoric acid. When the order of the experiment was reversed, and potash became the fertilizer to be added, the results were also most instructive. Potash alone produced an increased yield of 5.81 bushels per acre. With phosphoric acid the increment was 19.82 bushels per acre. Combined with nitrate of soda, the increase was 24.77 bushels per acre. These results confirm those obtained by the other method of procedure. The above experiments were carried out by Mr. F. E. Clark, on his farm near Wilbraham.

Mr. L. W. West, of Hadley, had better results in the use of nitrogen alone, especially when applied in the form of nitrate of soda. The high value of the nitrogen employed in Mr. West's experiments is contrary to the general experimental results, and indicates that the soil employed was probably poor in organic matter, the decay of which could furnish nitrogen to the growing crop.

The general results indicate the surpassing importance of potash to Massachusetts soils to be seeded to maize, and thus confirm the Kentucky results, with a soil that must be essentially different from that in which the Kentucky experiments were made. In view of the almost universal response of maize to this fertilizer on soils of such different origin, of so great differences in fertility, and in so many widely-separated localities, the conclusion that it should be a permanent and prominent ingredient for fertilizers used for this crop is irresistible.

In Massachusetts, also, the nitrate of soda appears to have proved far more profitable than in many other places, and its use was attended with favorable financial results in every instance.

A typical fertilizer for maize for Massachusetts soil is given in the following formula:

	Per acre.
Nitrogen (in nitrate of soda)	25 to 30 pounds.
Potash (as muriate or sulphate)	75 to 80 pounds.
Phosphoric acid	25 pounds.

The cash value of such a fertilizer per acre is about as follows:

Nitrogen, at 16 cents a pound	$4 00— 4 80
Potash, at 4 cents a pound	3 00— 3 20
Phosphoric acid, at 5 cents a pound	1 25— 1 25
Total	$8 25—$9 25

Potash in Combination with Stall Manure as a Fertilizer for Maize.

The value of stall manure as a general fertilizer is out of all proportion to the quantity of plant food it contains. Potash, nitrogen, and phosphoric acid in stall manure produce far larger returns in proportion to their quantity than when applied in any other form. On wheat, and especially on maize, are the effects of stall manure particularly noticeable. These hightened results of fertilizing effect are largely produced by the form in which the plant food is applied with stall manure, by its high availability, and by the organic matter with which it is combined.

The Massachusetts Station has made extended experiments with a combination of farmyard manure and potash. As a result of some previous experiments, the farmers of the State were advised to use potash with stall manure. For each acre it was advised to use four cords of stall manure and 100 pounds of muriate of potash. Further experiment and practical trial led to a slight modification of this formula, the ration of stall manure being diminished and that of potash increased, 3 cords of the manure and 125 pounds of potash chloride being the quantities finally agreed upon.

For the strictly experimental work an acre of land on the station grounds was selected. Previous to 1889 this plat had been used as a pasture for several years, and had not been treated with manure of any kind. In 1889 it was planted to maize without manure, and in 1890 was devoted to an experimental test with potatoes. The soil was therefore somewhat depleted of available plant food, being considerably more impoverished than the average maize lands of the State. The organic matter, which by its decay supplies the plant largely with its ration of nitrogen, must have been rather low in this soil on which two successive crops had been grown practically without fertilizers.

The acre was divided into four equal parts. To the first quarter of an acre there were applied one and a half cords of barnyard manure, producing a yield of 61.1 bushels per acre and 3,840 pounds of stover. To part two were applied three-quarters of a cord of barnyard manure and 31 pounds of muriate of potash. The yield was 57.2 bushels of grain per acre and 3,780 pounds of stover. Parts three and four were treated exactly as one and two, respectively. The yields were

as follows: Part 3, 61.5 bushels and 3,800 pounds; part 4, 55.4 bushels and 3,660 pounds. The value of the crop per acre for plats one and three was $49.40; for plats two and four, $45.90; cost of manure per acre (one and three), $30; cost of manure and potash per acre (three and four), $17.64. While, therefore, the half ration of stable manure, plus the potash, did not produce so large a crop as did the full ration of manure, yet the financial returns were better. The increased value of the crop with the full ration of manure over the value for the half ration, plus the potash, was $3.50. The cost of six cords of manure is $30, while the cost of three cords of manure and 124 pounds of muriate of potash is only $17.64. The net gain, therefore, by using the half ration of manure with the potash is $8.96 per acre. The practical lesson from the above data is of the greatest importance. By a judicious mixing of potash with stall manure the latter can be spread over a double area and the financial results be largely increased. There may perhaps be a tendency among our farmers to depend too much on concentrated manures, and these data show how great the profit may be by a judicious admixture of these highly-concentrated fertilizers with the manure of the stable.

Special Fertilizers.

In the early days of commercial fertilizers almost the whole quantity on the market was prepared from bones. The phrase "bone dust" with many farmers is the only term applied to concentrated fertilizers, whatever be their source. The supply of bones, however, soon ran short, and the vast plains of the West were soon denuded of the bones of buffaloes which had whitened in the sun for years. Even the grave is made to minister to the wants of the present age, and the catacombs of Rome and Paris have yielded many a ton of bones to the entreaties of the waving wheat. The Christian martys have reached an immortality even in this world, and their bones have again entered the active circle of life. Even the sea gives up its dead to the insistent demands of the age, and the bread which is cast upon the waters literally returns after many days as food for man and beast.

Not long ago I was in a maize field while planting was going on, and the farmer was drilling "bone dust" with the seed. This dust was innocent of bone, but was made of phosphate rock, sulphuric acid, and tankage. It was also guaranteed to contain 2.5 per cent. of potash. It had been sold to him as a "corn fertilizer," and the manufacturer had evidently been reading about the wonderful results which accompany the application of potash to maize. As in all other matter so in the manufacture of fertilizer, there is a tendency to specialization, so that now we have corn, potato, tobacco, and tree fertilizers where a few years ago we found only bone dust. Fortunately the makers of these special brands of fertilizers have studied carefully the needs of the crops to which they would specially minister, so that for the most part these specialties are well suited to the purposes for which they are made.

There is yet, however, much that may be done in the way of improving these mixtures, and the way of experiment, based on a scientific conception of the conditions of the problem, is the only method of reaching valuable results. The Massachusetts station has applied this method to the study of some special "corn fertilizers," and with most gratifying results. The average composition of seven special maize fertilizers was taken as the basis of the experiment. A half acre was divided into two parts, and one part was treated at the rate of 800 pounds per acre with a fertilizer of the mean composition of the seven specials mentioned above. On the second part the fertilizer employed contained much less phosphoric acid and much more potash than the mean of the special. The value of the special fertilizer per acre was $13.66; that of the modified fertilizer was $10.70. The value of the crop for the first plat was $48.05 per acre, and for the second plat $49.30 per acre. The beneficial effects of diminishing the phosphoric acid and increasing the potash are seen not only in the increased yield, but chiefly also in the decreased cost of the fertilizing mixture.

The general experience of the Massachusetts station makes the following advice extremely valuable to maize growers:

When sod land is to be seeded to maize apply only fertilizers rich in potash. Use a mixture which will supply from 80 to 100 pounds of actual potash (not muriate, of which about twice that amount would be required), from 20 to 25 pounds of phosphoric acid, and from 15 to 20 pounds of nitrogen per acre. When special corn fertilizers are used apply about 500 pounds per acre, and add to it about 125 pounds of muriate of potash. With barnyard manure use about four cords of the manure and 100 pounds muriate of potash per acre. Farmers are advised to buy the materials and mix them. The following formulas will serve as a guide:

Formula 1 (per acre).—Muriate of potash, 175 pounds; dissolved bone-black, 175 pounds; nitrate of soda, 100 pounds.

Formula 2.—Muriate of potash, 175 pounds; superphospate, 150 pounds; bone meal, 100 pounds; dried blood, 175 pounds.

Formula 3.—Wood ashes, 1,500 pounds; bone meal, 100 pounds; nitrate of soda, 100 pounds.

Formula 4.—Wood ashes, 1,500 pounds; ground fish, 400 pounds.

Formula 5.—Muriate of potash, 175 pounds; ground fish, 400 pounds.

The ashes, bone meal, and fish should be applied very early in Spring or late in Winter. The fertilizers should be spread broadcast and harrowed in. The ingredients should not be mixed long before using. It is hardly necessary to state that wood ashes furnish potash and phosphoric acid, and dried blood and ground fish chiefly nitrogen. Such combinations as those given above could be greatly extended, but in general for maize fertilizing the proportions between the phosphoric acid, nitrogen, and potash should be something near those indicated.

LETTING LAND BY CANDLELIGHT.

A Queer English Custom Which Still Survives in Some Sections of the Kingdom.

In venturing a short communication on this subject, the writer is conscious that a captious critic may complain that the head-line prefixed thereto does not accurately indicate the nature of the transaction treated of. Seeing that so long as the candle burns the bargain is not concluded, and that it is not till the "dip" has yielded its last expiring flicker that the land is let, it may be freely conceded that "letting land by candlelight" is not an exact description of the state of the case. But as no other title suggests itself, the indulgent reader may allow it to pass muster. In these days of bustle and hurry we find it difficult to understand how our forefathers could afford the time for the tedious process of public competition referred to. Under the hammer of the eloquent auctioneer of modern days, property, whether it takes the form of a landed estate or a copper kettle, changes hands with a startling celerity, and before we hardly realize that it is "going," it is "gone." In the "good old times," when folks had more leisure at their command, such matters were conducted in a more sober fashion. As each "lot" came up for disposal, an inch of candle was solemnly lighted; as it burned bids were received and chronicled, and the maker of the last offer before the candle-end died a natural death became the purchaser. In a little village in Gloucestershire this quaint custom still survives, in a letting of charity property—which is held every eight years. Time out of mind, indeed 400 or 500 years ago, an old Gloucestershire worthy, William Cutts by name, left certain freehold lands and villages in trust to feoffees for the benefit of the parish of South Cerney. The late Mr. Cutts selected the following objects for his beneficence: One-third of the proceeds was to go to the repair of the parish church, one-third to the repair of the parish roads—a two-fold encouragement to his successors to "mend their ways," which it is to be hoped they do not neglect—and the remaining third to the "second poor" of the parish. The property in question is directed to be put up to public competition every eight years, and the fate of each of the seven lots has to be determined by an inch of candle. Whether the inches of candle are stipulated for in the last will and testament of "Cutts, deceased," or whether they are simply the hallowed and tallowed product of ancient custom, this deponent knoweth not. But all right-minded persons who have a due and proper respect for the wisdom of "them of old time," would deem themselves religiously bound by either, and so for heaven's sake let us stick to the candle, or the country's done for! Besides, does not the time-honored plan save auctioneers' fees? Of course it does, and when the feoffees have the combined forces of reverence for the past and economy for the present on their side, who will have the hardihood to criticise their action.

One of the periodical candlelight lettings has just taken place, and a curious and amusing ceremony it is. Imagine yourself in the snug "bar-parlor" of an old-fashioned village inn, whose bright fire, sparkling bottles, and inviting seats present a cheery appearance to the customer who drops in on a raw November evening. A good company of the villagers is assembled, and at the appointed time an adjournment is made to the less comfortable but more business-like club-room. All in readiness for the ceremony, the seven separate inches of candle are arranged on a deal board with severe and stately simplicity, ready to yield their last bit of wick in the country's cause. The legal adviser to the feoffees tersely explains the conditions of the tenancies, the first lot is fully described, and the first inch of candle is ignited. The biddings open cautiously, but anon a handmaid enters the room bearing in her hands foaming jugs of beer. The contents of these vessels have some effect in dissipating the marked reserve of the customers, and biddings rattle in sharply as the inch of candle is gradually shortened. Suddenly the arbiter of the fate of lot No. 1 heels over and sputters. Surely neighbor George has got a bargain! No, the wick recuperates itself from the reservoir of melted tallow into which it has fallen, and flares up defiantly, two more bids are chronicled, and then at last, slowly and with ovious unwillingness, the candle goes out, and lot No. 1 is done for. The jugs are replenished, some of the more prominent of the bidders are honored with a glass of "summat hot wi' a spoon in 't," and lot two is proceeded with. And so on, till the whole seven lots are disposed of. Incidents there are in plenty; the feoffees point out the valuable features of the properties, the bidders mercilessly expose their disadvantages, while he who is most anxious to secure a particular lot is most emphatic in its condemnation. Rural aspirants for this or that field occasionally hold mysterious whispered conferences in dark corners of the dimly-lit room, one arranges with the other not to "run him up," when a third party cheerfully "cuts in" with an unexpected bidding, and upsets the result of the conference amid general laughter. At length the deliberate, not to say tedious, process comes to an end. The disposal of the seven lots has taken four mortal hours to effect, and everybody departs gladdened by the reflection that the tiresome operation has not to be repeated for another eight years to come.—*The Farmer's Magazine, London.*

Desert Products.

The popular opinion seems to be that no vegetable life can buffet the unfavorable conditions of the dreary desert. Contrary to this is the case of several plants. In Arabia, the land of deserts, the rosemary and lavender flourish luxuriantly, and from these deserts we get most of our supply. The wild straw' erry thrives to perfection in the desert areas of Chile.

The remarkable coldness of the month of May in most parts of the country has caused a shortage of the hay crop, and there is a large demand for it in the country towns.

THE BARN SWALLOWS.

Happy Harbingers of Spring that Bring Nothing to the Farmer's Mind but Gladness and Welcome.

BY PROF. H. W. ELLIOTT.

IN PASSING from the consideration of the wiley "varmints" to that of the twittering swallows, we go as from a cloudy day into one that is all warmth and sunshine; for of all sociable, light-hearted birds that rural dwellers learn to know well by sight and sound, the barn swallows easily take the lead, and no bird is so wholly free from any and all complaint as is the subject of our sketch; but only those barns or sheds which are truly roughened by long exposure to the weather, free from paint, and in a decidedly quiet country place, will ever be found sheltering the barn swallow and its brood.

The farmer, as a rule, is not an emotional man; he is not given to much dreamy speculation over anything that comes and goes with the procession of the seasons with which he has been familiar from childhood; but when the swallows come twittering to the eaves of his old barn in May, he seldom fails to express his satisfaction, his wife echoes it, and the children clap their hands in full accord.

The suddenness with which swallows appear in the Spring, and the equally sudden disappearance which they make in the Autumn, have given rise to much queer fiction as to where they really go and come from, among the rural residents. You will find thousands of intelligent people insisting that a swallow buries itself in the mud of ponds and sloughs, and there passes in a torpid state the long Winter months! But this bird, provided with long, strong, acute, thin-bladed wings, possesses surprising volatorical power, and they are enabled by it to pass with ease and swiftness from one country to another, as the state of the weather may require. With us a few warm days in February or March allures them from the southward, only to disappear instantly when the temperature falls; and this sudden coming and going has given rise to that old saying, "one swallow does not make a Summer."

No birds are better known to all classes than the swallows are, and they are welcomed everywhere that they come in contact with the belongings of men. Their habits illustrate very handsomely the modifying influences of civilization on indigenous birds and animals; because, before we put up our wooden, wide-eaved barns and sheds, they all bred on cliffs, in banks, in hollows of trees, and similar places, and many still do so. But most of the species have forsaken these primitive hants to avail themselves of the convenient artificial nesting shelters which man has unintentionally or otherwise provided. Some are just now in a transition state, Coues says, like the purple martin, which in settled parts of the country chooses the boxes everywhere provided for its accomodation, while in the West it retains its old custom of breeding in hollow trees.

The swallows and the swifts have a close superficial resemblance to each other, and, indeed, for that matter, the swifts (*Cypselidæ*) are usually called "swallows" most everywhere that they are spoken of or observed; while in fact, they are very distinct and belong to a widely-separated family.

A hundred species are know as swallows to naturalists as they are found all over the world. The most generalized type like the barn swallow (*Hirundo*) is quite cosmopolitan; but each of the great divisions of the race has its peculiar sub-genera and particular species; so all of the American groups, except the barn and bank swallows, are peculiar to this continent alone.

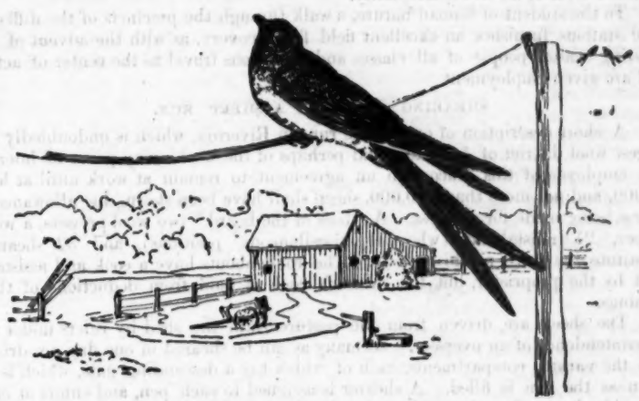
Our seven American species may be readily told apart by the following abstract of their distinctive coloration: Lustrous steel blue above; rufous below—the barn swallow (*Hirundo*). Lustrous green above; pure white below—the white-bellied swallow (*Iridoprocue*). Opaque velvety green above; white below—the violet-velvet swallow (*Tachycineta*). Lustrous steel blue above, and rump rufous—the cliff swallow (*Petrochelidon*). Dull gray above; below white—the bank swallow (*Cotile*). Dull brown above; paler dull brown below—the rough-winged swallow (*Stelgidopteryæ*). Entirely lustrous blue, black all over (males)—the purple martin (*Progne*).

The bank swallows dig holes in the sandy and marl bluffs of deep-cut streams and rivers wherein they nest, while the cliff swallows neatly plaster their nests to the rocks under shelves, and the barn swallows put theirs in the familiar shadow of the eaves of those buildings after which we name them; the white bellied and violet-green swallows take up their residence in holes of trees or rocky clefts which they find, but do not attempt to fashion themselves; all these swallows, except the bank swallow, will locate in an artificial nesting box made by man, especially the last one, the martin (*Progne*), which is so common a sojourner with man, living in one of those quaint houses set at the top of a pole in the backyard that you will observe everywhere throughout the country.

The swallows have a very close superficial resemblance to the swifts, as we have remarked above, and the little swift which we hear universally called the chimney swallow certainly twitters and flies exactly like a true swallow; but the swifts are the birds which possess that remarkable development of the salivary glands which causes them to make their nests up as with glue and other materials. In all of the species of which the nidification is known, the secretion thus produced is used more or less in the construction of the nest. In most cases it forms a glue that binds the other materials together, and by which the whole nest is affixed to a rock, wall, or other object against which it is placed. In some species of the swift tribe, the whole nest is made up of inspissated saliva, and becomes the edible bird's nest so well known in the East, in China, and in Borneo, and Java.

Although the swallows carry mud fresh and moist from ponds and other places in their mouths up to the barn and plaster it against the boards, yet there is no excretion of saliva by them and nothing like an edible suggestion to their work.

The swifts are high fliers of almost incredible velocity, and take their food on the wing like the swallows, rushing hither and thither with loud, shrill twitters. The Greeks called them "cloud dwellers" with much fitness, for no bird perhaps is so much at home high up in the air; with the exception of the humming bird, no other is so rapid in flight. There are only about 50 species of swifts inhabiting the temperate and tropical zones of the earth. Of these we have but three in North America; the big, black, white-throated *Panyptila*, which is abundant in the south-western States, and breeds on the faces of inaccessible cliffs—so inaccessible that thus far no one seems to have been able to get its eggs. Then there is the *Nephœcetes*, the Pacific Coast form, which also has succeeded in so placing its nest in the inaccessible altitudes of rugged mountains that thus far no eggs have yet been taken by man; and last, but not least, our little chimney swift, *Chætura*, which like the swallows that this bird so curiously resembles not only in form, mode of flight, and twittering notes, it has mostly forsaken the ways of its ancestors who bred in hollow trees, and now resorts to the sooty recesses of disused chimneys in the settled districts of our country, though seldom coming into the the heart of a large town or city. In the dark throat of such a chimney it glues with its saliva an open-work nest of bits of twigs and weed stems, and raises a brood there with infinite noise and activity. Coues says that the twigs which it uses for this nest are snapped off from the trees while the bird is in full flight. In districts still primitive, however, it continues to use hollow trees, in which it resorts by thousands to roost and breed.



The swallows and swifts are the only birds that capture their food and eat it while on the wing, save the hummers; the latter, however, extract the juices of vegetables and flowers, and hardly can be said to capture their living. The swallows and swifts are distinguished by the shortness of their bills and the wide gape of their mouths, and their mode of seizing their prey is conformable to these characters, for they take it in full flight into the cavity of their mouths, which remain open for that purpose, and where a viscious exudation within and a strong retriculated fence of vibrisse on the exterior assist in securing the insects. Again, while the wings are so immensely developed in these birds, yet their feet are ludicrously weak and impotent. They have their external toes in general to such a degree united with the internal for the most part as far as to the second phalanx so as to be deprived of the free play of that joint, and the swallow is thus rendered really incapable of walking or of using its legs for any other purpose than that of mere perching.

While the swallow will resort to the barn and sheds of the farmer year after year, yet it cannot be coaxed to come fairly into his house like the martin. This handsome, glossy bird is known all the world over where man has settled, and seems to seek him out, and, as Nuttall says, "Associates itself equally with the master, the slave, the colonist, and the aboriginal. To him it is indifferent whether his mansion be carved or painted, or humbled into the hospitable shelter of the calabash or gourd. Secure of an asylum for its mate and young while under the protection of man, it twitters forth its gratitude and is everywhere welcome to a home. So eager is he to claim this kind of protection that sometimes he ventures hostilities with the blue birds and domestic pigeons, whom he often forces to abandon their hereditary claims. Satisfied with their reception and success, like so many contented and faithful domestics, they return year after to the same station."

A species of *Collocalia* is the swift that makes those famous edible nests that form such a great Chinese delicacy and constitute a considerable article of commerce in that country. This species is small, brown above and whitish beneath and at the end of its forked tail. The nests are made of a particular species of sea weed, which the bird macerates and bruises in its jaws before it ensalivates it and deposits it in layers so as to form the whitish, gelatinous, cup-shaped nests so highly prized by Chinese as a delicacy and restorative when dissolved in their

coups. The nests are fixed to the rocks in caves or shadowed cliffs, and the finest are semi-transparent; the coarse or dirty nests are used for glue.

Quid scopulos, Progne, quid inhospita littora nidis
Optas, per nedias hos gula quæret aquas?

No prettier picture in all country life is presented than is that one which an old swallow-hanted barn offers to the view; especially so when it is framed by well-kept and smiling fields and orchards. The tireless, graceful flight and low, musical twitter of these birds gives the happiest life and action to the scene.

THE WOOL INDUSTRY OF AUSTRALIA.

The Remarkable Growth of This Industry, and a Description of How it is Carried On.

EDITOR AMERICAN FARMER: In traveling over this island, excelling perhaps any other region in the beauty of its scenery, one cannot help but notice what is probably its principal business feature—the large number of sheep runs, occupying immense tracts of land, and furnishing employment to thousands and thousands of Europeans and natives. The early settlers of this vast island—which is nearly as large as the United States—discovered that the raising of sheep could be carried on with a greater degree of profit and with less trouble than the majority of other agricultural pursuits, and to this day their ideas have been carried out by their successors, and the wool industry has assumed immense proportions. With the growth of population and the increased interest in this industry, the eastern portion of the island can now boast of having about 88,000,000 sheep, and it is fair to presume that in the next decade the number will reach 100,000,000.

The first sheep introduced into this country were from Bengal, and were coarse and hairy. The climate and pasturage speedily eliminated the hair and improved the fleece. The subsequent introduction of Leicester and Southdown sheep, and their crossing with the Bengal sheep, produced a fine stock, which now furnishes wool of an excellent quality.

To the student of human nature, a walk through the precincts of the different wool stations furnishes an excellent field for discovery, as with the advent of the shearing season, people of all classes and conditions travel to the center of action and are given employment.

SHEARING SEASON AT A SHEEP RUN.

A short description of one of the runs in Rivernia, which is undoubtedly the largest wool district of Australia, and perhaps of the world, may prove of interest. The employes of this place sign an agreement to remain at work until at least 90,000, and not more than 100,000, sheep shall have been shorn, due allowance, of course, being made for sickness. A "boss of the board," two wool-pressers, a wool-classer, 21 roustabouts (who fill miscellaneous positions), and 32 shearers, constitute the force at this colony. The rouse-abouts have a cook and assistant, paid by the proprietor, but the shearer's cook is paid from deductions of their earnings.

The sheep are driven from the pastures into the shed by riders under the superintendence of an overseer. As many as can be sheared in one day are driven into the various compartments, each of which has a descending gate, which is let down as the pen is filled. A shearer is assigned to each pen, and enters at once upon his duty. Stepping within the pen, he selects a sheep, and bringing it out through the wicket, places it between his legs and then by the use of a machine, no shears being used, divests the animal of its fleece. The animal being shorn, is thrust through a narrow entrance into a pen opposite. The picker-up, after taking off the belly part of the fleece and putting it in a bag used for that purpose, carries the fleece to one of the wool-rollers' tables, where it is laid with the outside upward and the neck forward. These wool-rollers carefully examine the fleece and remove all portions of it which are in any way coarse, burry or dirty. The tables upon which this examination is made are two or three inches lower at the bottom than at the top, and are composed of boards about an inch square and set transversely an inch apart. Through the interstices thus created are dropped the portions of wool (called "locks") intended for scouring.

The duties of the wool-classer are, as his name would imply, to assort the pieces into the different classes to which they may belong. He is guided in his decisions by the strength, length, and fineness of the filaments of the wool composing the fleece. After passing the classer, the fleeces go to the pressers, who wrap them in strong materials, and by means of the wool-press reduce them to very small bulk for the weight of material they contain. After weighing and branding the bales—this duty devolving upon the book and storekeeper—the wool is ready for dispatching to the market.

The imperfect pieces are assorted into different classes, and together with the bellies are thoroughly scoured before being sent to the market. These pieces are first steeped in a large vat, containing a solution of soap and other purifying materials, to rid them of the dirt and grease. Next they are thrown on an inclined frame of lattice-work and the liquor held by the wet wool is allowed to drain into the vat. From this the wool is removed to two extensive cylinders into which there flowed an impetuous stream of cold water, which by its rapid motion serves to complete the process of cleansing. The cleansed wool is then carefully removed with forks to the drying green, being spread upon muslin to prevent any possible accumulation of dirt. During the drying process, the wool is often turned by hand to hasten the evaporation of moisture. Thus, by careful attention to the finest detail, is the wool prepared for the market, and by producing a good article, always up to the highest standard of perfection, the demand increases and the industry necessarily continues to grow, assuming proportions nothing short of marvelous.

THE "BOSS OF THE BOARD"

is in charge of the pickers-up, yarders, the brander, engine-keeper, and other miscellaneous workers. He sees that the sheep are properly sheared, and does not allow any cruelty to be practiced. He also counts the sheep that have been shorn and posts in a conspicuous place a tally of the records of the different shearers. His salary is four pounds, or about $20 a week, with board and lodging included. The wool-classer receives 15 shillings, or about $3.75, for every 1,000 sheep shorn, and also gets his board and lodging. The shearers receive one pound sterling ($4.84) for every 100 sheep shorn, and furnish their own board. The wool-rollers, piece-lifters, yarders, etc., receive 15 shillings, or $3.75 a week, with their board.

The export trade in wool has grown remarkably. In 1810, the amount exported from Tasmania and Australia was only 167 pounds, and in 1843 it amounted to 16,226,400 pounds from Australia only. The value of the exports of Australia to Europe during the last year aggregated about $150,000,000, and of that amount $100,000,000 was represented by wool.—GORDON BURLEIGH, Sydney, Australia.

SHEEP SHEARINGS.

Some Fine Fleeces Clipped in "The Old York State."

EDITOR AMERICAN FARMER: Inclosed please find report of sheep shorn in public this Spring in our State. All fleeces are on basis of 365 days' growth. —J. H. EARLL, Secretary New York State American Merino Sheep-Breeders' Association, Skaneateles, N. Y.

Owner.	Sire.	Ear Label Number.	Age, years.	Length of Staple.	Length of Fiber.	Weight of Carcass.	Weight of Fleece. Lbs.	Oz.
	Rams.							
P. Martin	Brick	507	2	2½	3½	127	26	0
P. Martin	Brick	445	3	2	3	113	31	0
P. Martin	Block	513	2	2½	3½	115	36	0
P. Martin	Block	514	2	2½	3	110	32	14
G. F. Martin	Harrison Vici	548	2	2½	3	100	25	12
G. F. Martin	Copper-bottom	562	3	2	2½	117	25	0
B. C. Hobart	Voucher	510	3	2½	3	114	34	0
L. Johnson	Aimeren	985	4	2½	3½	89	25	0
L. Johnson	Oil City	980	4	2	3½	10	25	0
H. C. Smith	D. Cosiit 1048	312	1	1½	2½	64	17	0
R. M. Lee	Harmony	108	1	2½	3½	76	12	0
D. H. Clark	Admiration	3 9	3	2½	3½	141	31	14
D. H. Clark	Admiration	101	1	2½	3	67	14	11
D. H. Clark	Character	115	1	2	2½	64	14	0
Wellman & Son	H. C. Smith 121	975	3	2½	3½	120	28	0
Wellman & Son	Standard Head	149	2	2½	3	104	38	0
Wellman & Son	Oatka Moses	768	4	2	2½	122	27	0
N. M. Wellman	New Model	254	2	2½	3	104	26	0
N. M. Wellman	Adirondack	155	4	2½	3	124	26	11
W. H. Kendall	New General	249	2	2½	3	97	24	0
W. H. Kendall	Harmony	66	2	1½	2½	100	20	0
W. H. Kendall	Admiration	89	1	2½	3½	102	18	0
	Ewes.							
Geo. S. Hickox	Prince Crimps	101	4	2	3	76	19	1
R. M. Lee	Capt. Blaine	50	6	2	3½	114	19	0
R. M. Lee	Harmony	90	3	2½	3½	108	18	0
David Cossitt	Real Estate	1091	3	2½	3	80	20	0
David Cossitt	D. Cosiit 1047	1238	1	2	3	62	15	0
David Cossitt	D. Cosiit 1047	1230	1	2½	3½	77	15	0
Jerry Wilson	Middlesex	20	3	2½	3½	96	20	0
Jerry Wilson	Middlesex	31	2	2½	3½	90	19	0
H. C. Smith	D. Cosiit 1048	286	1	2½	3	62	10	0
H. C. Smith	Adirondack 3d	816	1	2½	3	60	10	0
Wellman & Son	Steuben	908	3	2½	3½	88	22	0
Wellman & Son	H. P. Clark 332	103	2	2½	3½	87	23	0
Wellman & Son	H. P. Clark 332	105	2	2½	3½	91	18	1
Wellman & Son	Valgean	991	3	2½	3	90	25	0
Wellman & Son	Oatka Hope	68	1	2½	3½	71	13	0
Wellman & Son	Oatka Hope	58	1	2½	3	....	.....	
D. H. Clark	General, Jr.	682	5	2½	3	80	19	12
D. H. Clark	S. B. Lusk 285	573	4	3	3½	89	23	0
D. H. Clark	Admiration	101	1	2½	3	61	14	0
W. H. Clark	Young New York	65	3	3	3½	98	17	0
W. H. Clark	Admiration	095	1	2½	3	58	13	15
W. H. Kendall	Uncle Sam	1	1	3	4	72	17	0
N. M. Wellman	N. M. Wellman 81	196	2	2½	3½	63	17	0
S. B. Lusk	Towles 285	376	4	2½	3½	107	25	0
S. B. Lusk	Towles 285	397	3	2½	3½	83	23	0
S. B. Lusk	Towles 538	399	3	2½	3½	87	24	14
S. B. Lusk	Favor	413	2	2½	3½	96	21	0
S. B. Lusk	Favor	347	5	3	4½	121	24	0
S. B. Lusk	Favor	349	5	2½	3½	75	25	0
S. B. Lusk	Favor	891	3	2½	3½	105	20	0

Sulphate of Copper for Smut in Grain.

By soaking seed-wheat in a weak solution of sulphate of copper, the dreaded smut can be averted. The sulphate of copper is used at the rate of one pound to 400 pounds of wheat-seed, and is prepared by dissolving in warm water. This is then poured in a barrel full of water and thoroughly stirred. The wheat should be in sacks which will admit the water, so that all the grains may get the benefit of the soaking. Three or four minutes is all the time required for the wheat to become thoroughly saturated, and when the sack is taken out of the mixture it should be placed in a draining trough to allow the water to escape. When the water in the barrel gets too low more can be added, and to keep up the strength of the solution more sulphate of copper should be dissolved and poured in the barrel now and then. This is not only a remedy for the smut in wheat, but for all grains subject to this disease. The sulphate of copper, also known as blue vitriol, is poisonous, and care should be taken that the stock get none of it, otherwise it might prove fatal. It does not seem to have any ill-effect on poultry and pigs. This remedy is in great use in the Pacific States.

TRACKING A TORNADO.

Experiences and Observations of the Destructive Storm at Medicine Lodge, Kan.

BY H. W. WILEY.

The TORNADO, or cyclone, which passed through Barber and Sumner Counties, Kan., on Friday evening, May 27, was one of the most destructive that has ever visited that region. Fortunately the loss of life was small on account of the country being thinly populated; but wherever the wind found an obstruction there was little left afterward but a mass of comminuted debris. The tornado was formed at a point about three miles northwest of Medicine Lodge, Kan. The day had been a pleasant one, neither hot nor cold. A rather stiff breeze prevailed the greater part of the day, blowing from the southeast. At times the sky was partly obscured by clouds, but there had been a fair amount of sunshine during the day.

There was absolutely nothing in the atmospheric conditions that in any way gave intimation of the violent meteorological disturbances to follow. We are accustomed to think of such storms as being preceded by intense heat or great calms, or as being foreshadowed by a feeling of oppression or foreboding. Such conditions as these were absolutely wanting in the great storm of May 27. During the afternoon, in company with Mr. Hinman, I had inspected a large number of sorghum plants which are growing in the neighborhood of Medicine Lodge, for the purpose of developing varieties of the highest grade for sugar making. About 5 o'clock in the afternoon an ordinary rain cloud gathered in the northwest, and a light rain fell on us as we were looking over the last plat, about a mile north of town, which we proposed to inspect that day. The rain was not sufficient to drive us to cover, nor was the cloud angry enough to cause us to drive townward with any increased speed. After supper (about 6.30 p. m.) I looked at the northwest and saw a most striking phenomenon. The clouds, which were not yet black, were convulsed as if they had been put into a huge churn with the dasher rapidly at work. There was apparently no direction—up, down, right, left, or obliquely—that some of them were not following. In this chaos of confusion, however, after a time there seemed to be some order evolved. The whole mass of cloud and vapor had acquired a gyrating movement. To me this movement appeared as follows: Looking westward the clouds nearest me appeared to be moving north, those farthest from me south, those on my left east, and those on my right west. During all this time, nearly half an hour, the center of the disturbance appeared nearly fixed. It had apparently advanced eastward only a few miles, and was now nearly north of the town and about two miles away. Suddenly a great change took place. From the center of the boiling mass of vapor a funnel-shaped cloud was formed, with its apex pointed toward the earth. The sides of this funnel could be seen in rapid rotation in the same directions as the larger mass was moving before. In a few minutes this rolling mass of vapor seemed to reach the earth, moving back and forth like the tail of an angry lion.

From our point of view (two miles distant) it seemed to be only a few feet in diameter. The whole storm then started rapidly toward the east. In a few minutes more the descending rain began to shut the angry whirlwind from our view; and it soon disappeared in the deluge of water as a malignant specter might vanish in the gloom.

Although the storm center passed so near the town, but little damage was done therein. One business house was unroofed, one stable blown down, and a few shingles and signs sent sailing. Within a space of time of 15 minutes the wind blew from every point of the compass. Another curious observation was the changes in temperature. At one moment the wind would feel warm as if blown out of a furnace. At another moment it was cold as if coming from a field of ice.

The storm moved eastward from Medicine Lodge at a rate of about 40 miles an hour. Wherever in its path the funnel-shaped cloud touched the earth everything movable was destroyed. When the funnel would rise the damage done would be slight. In the town of Harper almost every house was more or less injured, and many entirely destroyed. A freight train near the town was blown from the track. I saw other freight cars from which the roof was blown off. At Wellington about four blocks of houses in the business center of the town were entirely destroyed. I spent an hour the following day in the ruins. The perfection of the destruction is indescribable. In many places it was almost impossible to tell where the foundations had been. The bark was in many places completely peeled from the trunks of such trees as were left standing. Men were in many cases picked up, as it were, by invisible hands, and set safely down at a great distance. Indeed, this lifting power of the cyclone is doubtless the cause of so little loss of life. Living beings are carried along with the flying debris, and all are set down together on Mother Earth.

A deluge of rain accompanied and followed the tornado. In many places also violent hail storms destroyed what the wind and water had left. I saw dozens of wheat fields beaten down by the hail—as the Gettysburg fields of grain were destroyed by the tramp of contending armies in those fierce July days of 1863.

Truly the farmers' ills are many. What escapes the frosts of Winter often lingers only to be destroyed by the floods and winds of Spring.

The cause of cyclones are not well understood. There is possible but little of kinship between the great tropical cyclones that sweep over thousands of square miles and the erratic tornado that covers only a few feet in breadth; but the latter is often more destructive than the former. The broad plains of the great intercontinental area of our country seem well suited to those sudden meteoric changes which develop into a tornado. Great inland centers are subject to more violent variations of temperature and rainfall than the littoral areas bordering great seas. Their mingling of air currents of great differences in temperature and saturation produce the tempest and the storm. More destructive than fire and pestilence are the hail, water, and wind of the terrible tornado.

In such regions the farmer who takes out policies of insurance is more wise who covers himself against loss by storm rather than by fire. Such insurance is already established in the central portions of the country, and even the fields of growing grain are in some cases covered against loss by hail. But whether these storms are due to local variations in temperature, pressure, and saturation, or are caused by the vast outlying meteoric currents, one thing is sure, they bring sudden disorder and often death. In a thinking the industrious farmer sees his crops destroyed and his home a wreck.

OUR TIMBER RESERVE.

The Mountain Region from West Virginia to Alabama.

The largest reserve of timber now left in an almost solid body in the United States is that of the Southern mountain region, which stretches from West Virginia, along the crest and flanks of the Blue Ridge, south to Alabama. Of this large tract of almost unbroken forest nearly the whole is elevated from 1,500 to 4,500 feet above tide level, with occasional elevations of 5,000 to 6,000 feet, and, lying in a direction nearly midway between the Atlantic and the Gulf of Mexico, intercepts the water-laden winds from either direction, and thus causes a precipitation unequaled for its volume in any other part of North America.

There the average rainfall approaches 100 inches in a year, and single rains have measured 11 inches in one night. This water sinks into the porous soil and escapes slowly through innumerable springs which flow perennially and copiously, so much so that a stream flowing only 20 miles attains a width of 200 feet, with an exceedingly rapid current. These springs are the headwaters of all that system of large rivers that flow on one side to the ocean and on the other to the Gulf. And the flow of water, restricted by the porous soil of the forests and the deep vegetable matter accumulated in the damp shade, is so slow in escaping that floods are of rare occurrence.

But let all this be changed, and those mountain tops and slopes be denuded of the magnificent forests so dense in places as to be almost impenetrable by the hunter, and the lands be improved by agriculture, the result cannot be doubted. The soil must be swept down the streams and fill up the lower levels; the copious rains over 20,000 square miles of mountain sides, in many places precipitous, must rush in torrents over the low lands and overwhelm them with destruction!

A cursory study of the geography of the territory subjected to this danger will show how vast is the interest involved. The great Valley of the Tennessee, from Ohio to the Gulf shores, and on the east all North Carolina, South Carolina, and Georgia, are concerned in this impending change. For already the lumberer is invading the mountains and damming the streams to float down the logs, every one of which is a letter making up the story of disaster to come. And nothing can prevent it but some immediate legislative action that may control the business of harvesting the timber and prevent its entire destruction.

Here is an example of the necessity of doing something more than organising a Forestry Bureau and making reports annually about what is going to be or should be done, and using the Bureau as a small political agency. The welfare of seven States is concerned, and although it is now a dozen years since the Forestry Bureau was organized, nothing of any practical value, not even a successful effort to excite public interest in the matter, has been accomplished.—*New York Times.*

Tobacco in India.

In India, a noticeable fact is that, with few exceptions, all of the natives—men, women, and children—use tobacco in some form. It is not considered as a luxury, as in this country, but as more of a refreshment and sign of fellowship. When a group of natives are assembled the pipe, or "hookah," is passed around, and it is considered an act of discourtesy to refuse to take at least a few puffs. The refusal to smoke in a friend's house is considered an insult. When a native has been for any reason outcasted or banished from society, his fellow-creatures refuse to smoke with him. The Chinese and the natives of India evidently regard this weed as one of the necessaries of life, as they speak of "eating" and "drinking" tobacco. It is probable that the almost universal use of tobacco in India is accounted for by the fact of its extensive growth and consequent cheapness.

The Smallest Camels.

The western part of Persia is inhabited by a species of camel, including, perhaps, the smallest of its race. Some of these creatures are of an almost pure white color, and are on that account worshipped by certain of the natives. In 1889, when the Shah was in Berlin, he was so cordially welcomed by the authorities that he afterward presented the city with a pair of the white camels. The larger of the two was only 27 inches high, and weighed but 61 pounds.

PARASITIC DISEASES.

Dampness and Filth the Principal Causes—Means of Prevention and Cure.

ONE OF THE most common obstacles to successful sheep husbandry is the unexpected appearance of those forms of disease which do not stop with the first victim, but continue until the flock is decimated, or its vigor and constitution are impaired. How serious an occurrence this is many a farmer knows who has attempted to build up a choice flock, giving his animals, as he supposed, extra attention and feed, supplying them with warm shelters in Winter and good pastures in Summer, only to meet discouragement and despair by seeing them die, one after another, without apparent reason.

Diseases of this character are generally caused by parasites—sometimes animal parasites, which can be easily discovered in the lungs, the stomach, the intestines, the liver or other organs of the body, and sometimes bacterial parasites, which can only be discovered with difficulty by using the highest magnifying powers of the microscope. It is important to bear this in mind, for although the sheep owner may not be able to discover the parasite which is doing the mischief, if he realizes that there is a parasite at work he will adopt measures of prevention which otherwise would not occur to him.

Our improved breeds of animals are in some respects more vulnerable to the attacks of parasites, and more seriously affected by them than are the common varieties to which the majority of farmers have been accustomed. The large Asiatic fowls are more disastrously ravaged by cholera, the Shorthorn and Hereford cattle are more fatally affected by Texas fever, and the large mutton sheep are apparently more seriously attacked by various parasites. It is, consequently, important at this time, when the sheep husbandry of the country is going through a transition period, when the Merino and its grades are being replaced by Southdowns and Shropshires and Cotswolds, that special attention should be given to the prevention of parasitic diseases. We should not forget that these mutton sheep are in many cases recently imported; that they are unacclimated and unused to their food and surroundings. Until they have had time to adapt themselves to their new conditions of life, they are more susceptible to the various disease-producing agencies than they otherwise would be.

Cleanliness, ventilation, and drainage are the great enemies of all parasites. The eggs and embryos of worms, and the disease-producing bacteria find the most suitable conditions for existence and growth in accumulations of manure, and in stagnant ponds, or wet, undrained pastures. Sheep pens should, therefore, be frequently cleaned; they should be dried by allowing free entrance of the air, and then, if they are disinfected with lime wash, they will be practically freed from dangerous parasites.

Pastures that are at all wet should be well drained. Most of the animal parasites have a stage of existence outside of the body of the host. Generally this stage is passed in water or in moist earth, and if these are not found the parasite does not survive. A stagnant pond in a pasture becomes contaminated with excrement; is charged with organic matter in suspension or solution, and is a favorite lodging and breeding place of many kinds of parasites. Let a flock of sheep drink from such a pond in which a dangerous parasite has found its home, and the whole flock is liable to become infected. Go a step farther, and bring an infected sheep upon a farm where there is such a pond, and the pond will become infected, and from the pond the remainder of the sheep will be invaded. In such a condition we have the starting point and the maintenance of disease in the flock, which baffles the shepherd and leads the farmer to the conclusion that sheep-raising is unprofitable.

There should be no stagnant ponds and no wet lands on the sheep farm. Drain such fields, or rigorously prevent the sheep from gaining entrance to them. Even fields infected with the bacillus of anthrax may be reclaimed by proper drainage, and yet this germ is one which, under some conditions, may survive for many years. Soil which is properly drained, and occasionally cultivated, is not suitable for the continued existence of most parasites. Hence, to destroy parasites, we must clean and disinfect pens, and drain when indicated, and occasionally cultivate pastures.

Another and a most excellent means of fighting parasites, is to change the sheep from time to time to fresh pastures. If there is reason to suspect a pasture of being infected with a dangerous parasite, change the sheep to a fresh pasture, plow the old one, and raise a crop upon it before sheep are again allowed there. When sheep are removed from a pasture for this cause, their exclusion should be absolute, and continued for a sufficient time to secure the destruction of the embryos of the parasites. If they return before this, even for a short time, they are infected with a new generation of parasites, and much of the value of the preventive measure has been destroyed.

A regular rotation of pastures should be observed, as well as a rotation of crops. The parasite of one species of domesticated animals are, as a rule, harmless to the other species. The parasites of the horse do not affect sheep, and those of cattle do not affect hogs. Here, then, we have the means of eradicating the parasites of sheep from our pastures. It is only necessary to plow them, to raise a crop, and to pasture one year with horses or cattle. A dry pasture may in this way be completely renovated.

Affected sheep should, if possible, receive appropriate treatment for any destructive parasite which is discovered. In most cases, however, more will be accomplished by changing the flock, two or three times a year, to fresh pastures until all signs of the trouble have disappeared. Then renovate the pastures which have become infected, and the sheep-owner is once more in a position to breathe freely.

WOMEN AT THE WORLD'S FAIR.

What They are Doing to Make it Successful.

Something more in regard to the work which women are to do for the World's Fair may be interesting. One of the features of the woman's display will be books illustrated by them. There are a good many who have become distinguished in that line of work, and Mrs. Palmer has made a great effort to get a full record in this direction. It will begin with their earliest accomplishment in the illustration of books, and will follow it down to the present time, care being taken to secure the finest specimens of her accomplishment in existence.

Miss Lovell, of New Mexico, has stirred up the Indian women of the Territory, and she promises a display of the best work of the most advanced pupils in the Indian mission schools. Besides this she will collect some of the work of the half civilized, with specimens of their curious garments. She is also endeavoring to secure a wainscoting of petrified wood for the Woman's Building. This wood is regarded as one of the most unique products of the Territory. It is nearly as hard as marble, and susceptible of most brilliant polish.

California women intend, among other exhibits, to set a table complete, from napery to all of the delicacies of the season. The table will be of handsome, polished redwood, the legs to be carved to represent something symbolical of the State.

There is also to be a co-operative exhibit by all the woman's exchange associations, or at least the most important ones in the United States, each one exhibiting its own specialty. The San Francisco Exchange proposes to show glace fruits and salted almonds of California growth, preserved fruits and certain delicacies for the sick for which the Exchange is celebrated. It will also show some fine drawn work in linen. From several different States are coming beautiful and artistic designs for the wood carving for the interior of the Women's Building. One from Kansas is an arrangement of the State emblem, the sunflower, and there are others quite as pleasing.

A most interesting fact is that leading women of Japan are to be also interested in the matter. The wife of the Imperial Japanese Minister, who has been in Chicago and whose husband is the Vice-President of the Japanese World's Fair Commission, held an extended conference with Mrs. Palmer, in which she expressed her desire to lend her aid toward stirring up the women of her country to an interest in the matter.

Flower Decorations.

"Pluck the primroses; pluck the violets;
Pluck the daisies,
Sing their praises."

The decoration of a home with cut flowers is to make that home a most attractive place, and yet they wither away so rapidly as to make one almost think that it is cruel to take the blossoms from their places to die so quickly. Of course with care they can be made to last much longer. A few hints in this direction may help some who love their presence, and yet who dislike to see them fade away so rapidly.

When flowers are put into water, let it be as nearly as possible of the same temperature as that of the room. Should the blossoms droop their heads at first it is probably because the stems are too long; cut them off a little and replace them in the water. When night comes take them from the vase, lay them in a cool place and cover them over with tissue paper. It is well to dip their stems in water before laying them away. They may also be put into a box, laid loosely, sprinkled carefully, and then closed away from the air. In the morning take them out, cut the stems a little, and put them into fresh water again. In this way they may be kept for many days looking fresh and beautiful.

There is nothing more grateful to an invalid than the presence in the rooms of fragrant blossoms, and no more charming gift can be made to them. But great care should be taken in making a choice, and also in not sending too many at one time. Flowers should also be placed in the sick room in such a position that they will be within reach of the eyes, and those of the finest color and greatest variety of form should be chosen.

The receptacles for flowers ought to be in accordance with the character of the blossoms; thus, for instance, water lilies should float in a low dish, but roses must be placed in bowls and taller vases. Violets and pansies must also have low dishes for their holding. I saw somewhere a very good suggestion in regard to arranging flowers in a vase, the opening of which was entirely too large for their graceful appearance. Place in the center of the larger vase a smaller tumbler or glass, which can be filled with flowers, and then around them gather other blossoms to make a complete and graceful whole.

Remember one thing, it is not the costliness of the flowers that you have for the adornment of your homes, but it is the perfection of their arrangement. In this color and character are to be considered, for there may be as great discord in a bunch of blossoms as in a strain of music.

THE GRANGE.

The Good Work It Is Doing for the Farmer.

BY HENRY TALCOTT, JEFFERSON, O.

KIND readers, what is the duty of farmers at the present hour? I for one feel thankful that after 100 years of progress we have at last got one good, stanch, agricultural journal established in Washington, D. C.—a farmer's friend to watch the legislation of Congress and give timely hints and advice to farmers so widely scattered all over this vast domain.

I think, with the vacillating course of the present Congress and the unreconcilable actions and votes of many members of that body, sent there by farmer votes from purely agricultural districts, that we have a large work of renovation on our hands which needs and must have attention.

In Ohio about four years ago the farmers of our State used their best efforts to secure the passage of pure-food laws, and to so amend our statutes that counterfeit articles of food should not be sold for genuine goods. Among others was the bogus butter law, which, in spite of National legislation, still needed more stringent State legislation. What was done? The Armour League, of Chicago, sent a keen and sharp agent they had used for their meanness in Congress and loaded him with circulars promising every Senator of Ohio who would vote against those honest, pure-food laws a reward. We had some of those circulars fall in our hands, and armed with them we confronted the enemy. The Agricultural Committee gave a most patient hearing to all our farmer organization committees, and were so convinced of the justice of our measures that they reported almost unanimously in favor of the pure-food laws and the amendments; but upon final passage in the Senate, to our great surprise, Senators in purely agricultural districts went back on their constituents. They wheeled in line with the Phil. Armour bogus butter frauds and we always supposed, as a matter of course, that they got the promised reward.

It now looks very much as though Wall street had done the same kind of dirty work in our American Congress, and farmers must purify that body. We did it most effectually in Ohio. Not a single bogus-butter devotee Senator got back into our Ohio Senate. They were mostly smothered in primary meetings, and if they slipped through there ended their political life in conventions. It was not so much the number of farmer votes as it was their active work.

The Grange organization is now complete in every State of this Union, and is in harmony with all other farmer organizations. Our meetings in subordinate Granges are held in almost every township in the Nation. It gives to the order a wonderful quickness to post its members, and it does help us to accomplish very desirable changes in our public servants as soon as they outgrow their usefulness or betray the interests of their constituents. The struggle in Congress this Winter to secure honest laws, which will fairly protect the great agricultural interests of the Nation, has cast such a gloom over our expectations and confidence in man that we are now busy with the voting records of these men to see how many and who must be retired. Will not the officers and members of ther Grange order throughout the whole United States send brief articles of anything which will interest the members of the order or help to build up and strengthen THE AMERICAN FARMER in its herculean effort to run a purely farm journal in Washington—the fountainhead of our Nation?

By timely and united action the farmers of Ohio renovated their Legislature and placed in the General Assembly between 30 and 40 farmer members. The pure food and other laws were passed, and gave a death blow to crime committed under the garb of industries. We put an end to the sale of poisonous drug vinegars, baking powders, etc., and swept out of existence mammoth plants for the conduct of this nefarious business. Just so, at the present hour, are we as farmers laboring with Congress to enact laws that will prevent commercial dishonesty in the sale of all food products. We desire to have everything sold for what it is. The dealing in options on farm produce is in no sense a fair industry, but it is crime. Its death blow is demanded, and no honest man can for a moment defend it in Congress or out; but the money power of our great cities thus far baffles our efforts to put it down. The city political press denounce the farmers as class legislators and claim our acts are class legislation, but the howl of these hungry wolves must not deter farmers a moment from the prosecution of this grand work.

There is no human agency more potent, or that forms a more important factor in the work, than the agricultural press. Let us sustain it. Increase the circulation of THE AMERICAN FARMER, so it will reach every subordinate Grange in the United States; also give it power and influence in other farmer homes. Then, if our National Grange Secretary and our National Grange Executive Committee, when they are in meeting at Washington, will contribute, we can receive from them the necessary instruction and true information most needed.

We have gained much by our organized efforts since the formation of the Grange in Washington, and, although but just in age of manhood now, it has done a noble work in the proper and correct education of our American Congress. We have lived long enough, and so have most of the founders of this Order, to see Agriculture clothed with honor, by making it one of the division heads of labor, for the stupendous work of this republican form of government. To-day our cabinet minister is looked upon with increasing favor, and his very able administration has won the respect and pride of all true American citizens who have the good of this Nation at heart.

He, too, needs THE AMERICAN FARMER medium to disseminate his news, pure and unadulterated, to farmers, to quicken the pulse of human action, and keep this vast army of toilers and producers in the closest sympathy and perfect accord with truly needed agricultural legislation in Congress. The general circulation of this paper to every State, County, and Town of the Nation would be an acquisition of great importance to the best interests of agriculture. It should not detract one particle from the agricultural press scattered all over the country, which is better prepared, perhaps, with local information to teach the best and most advanced ideas of this profession; but this central or city farm journal, will, undoubtedly, be in the closest sympathy with them. We must all pull together to gain our points, and save the honor and credit of this great Nation, whose equal has never been, nor cannot be, with our present advantage in start.

Successful Women.

It is always pleasant to chronicle the success of woman in any path in which she is a comparative stranger. Although women physicians have been practicing so long now that little is said in regard to them, yet there is still remaining considerable prejudice to be overcome. Recently Dr. Mary Putnam Jacobi was appointed visiting physician to St. Marks Hospital in New York City, the first to occupy such a position in a man's hospital. Dr. Jacobi is a woman of strong mental characteristics, well equipped professionally, and with a determination of character, and a courage that has carried her forward to success when many would have failed utterly. She is the author of several medical works, and is also President of the Society for the Encouragement of Medical Study for Women.

Another thing has happened recently which cannot fail to be a cause of congratulation to women. This is the selection of a woman's design for the soldiers' monument which is to be erected by the State of Iowa at Des Moines, the Legislature having just passed a bill setting apart $150,000, and locating a site for that purpose. The design was one made by Mrs. Harriet Ketcham, who lived as girl and woman in Mt. Pleasant, but who passed into the beyond something over a year ago. She made the design after a year of severe study in Rome. It is a beautiful conception combining the ideal with the historical, and will be a credit to the State when completed, as well as a beautiful memorial, not only to the soldiers, but to the woman sculptor out of whose brain proceeded this beautiful work.

In Chicago at the World's Fair will be seen the architectural plan of a woman in what is known as the Woman's Building. For this there were selected out of many three designs by as many women, all of them excellent, and all such as any architect might be willing to father. Miss Hayden was the one whose plans were finally adopted. Miss L. L. Howe took the second premium, and Miss Laura Hayes the third. Miss Hayes, it may be interesting to know, is the private secretary of Mrs. Potter Palmer. The latter, however, was not aware that this young woman had such a gift as was made evident, when it was discovered that she was the author of the plans that took the third premium.

Now the truer life d aws nigher,
Every year;
And its morning star climbs higher,
Every year;
Earth's hold on us grows slighter,
And the heavy burden lighter,
And the Dawn Immortal brighter,
Every year.

Fun for Everybody Who Knows How to Enjoy Merry Games.

A very interesting game which may be played by a company, large or small, is what is sometimes termed "The Farmyard Game." Those who take part in it are to be sitting in a circle around the room. There may be a circle within a circle if necessary. One of the company must go around and whisper in each one's ear, giving to each person the name of some animal which is to be represented by a sound natural to it. In reality he requests all to remain perfectly still which the person to be victimized is told to rise at the given signal and make his sound with as much vim as possible, such as the squealing of a pig or the crowing of a rooster. Then when everything is ready the leader counts one, two, three, having previously warned those present to do exactly as they were told. The result is that all but one remain in their seats perfectly quiet, while that unfortunate individual rises up and gives a solo performance, which, of course, brings down the house.

A funny addition to this performance is this: Instead of the leaders telling all the company to remain in their seats quietly, he gives to each individual a syllable to utter in concert with the rest; these are ish, osh, ush, going over and over with them until all have one, except the person who is to imitate the animal. The leader says "four," immediately after the "solo" has been given, and the company then makes what proves to be a big sneeze, the combination of these sounds uttered simultaneously having that result. It is apparently an encore of the solo performer, and is very ludicrous.

Then there is what may be called the game of "Emergencies," in which the company is seated in a circle as before. There is here no leader, but all commence about the same time, one whispering to the person on his right some sudden emergency, the more striking and appalling or ridiculous the better, the object being to make funny combinations. To his neighbor on the left he whispers a remedy for this emergency. When the round is completed then each one rises in turn and states the emergency given him, adding the remedy also as given him. One can easily see what a funny combination would arise, and the game insures any amount of fun to those who can throw away dignity and enjoy the absurdities to the full.

PROLOG.

HE LIKED her, found her a pleasant enough companion for his idle hours, and she—she loved him.

Hilda Boyle was one of those somewhat rare women—a woman without attractiveness. It was not that she was so exceedingly plain; it was not that any deformity disfigured her; but in some way, mysterious and undefinable, but very patent, all the magnetism that attracts a man to a woman was wanting in her. Where women lacking both her advantages of mind and person succeeded she failed, while nature, with a refinement of cruelty, had endowed her with as loving a heart as ever beat. A word of sympathy, a caress, were a positive necessity to her who so rarely received them. The very lines that added sternness to the face, the tight clasp of the lips that were so cold, the reserved manner which put one at such a distance, were but, little as one would have guessed it, the marks left by a lifetime of patiently-endured heartache.

I.

Overhead the moon was shining in all its glorious radiance, as it slowly sailed across the cloudless blue-black arc of heaven, while here and there a tiny star tried to match its twinkling light against the long silver beams.

The sea, lined and streaked with the silver light, lapped softly, lazily against the stone-built pier, which stretched far out into its peaceful waters.

Not a breath stirred the air; not a wave broke on the beach; only from afar, mellowed and softened by the distance, came the murmur of the breakers on those dangerous rocks that gave Cragsleigh such an unenviable reputation.

Half way up the pier a band was playing, and around the gas-lit pavilion stood the crowd of seaside holiday makers, who infinitely preferred listening to the latest waltz from a comic opera, or to a cornet solo with variations on a music-hall ditty, to the contemplation of the sea in its glorious majesty with the mantle of night drawing around it.

So the two figures leaning over the wooden railing which was fixed above the granite masonry at the far end were alone—quite alone. They talked little; sometimes one hazarded a remark, sometimes the other, but more often they were silent, and since silence is only possible between near friends and strangers, and they had met every day for the last fortnight, they must have been near friends.

"How still the sea is to-night," the girl said at length. "One can hardly fancy it storm-tossed and tempest-driven."

There was nothing in the words, there was everything in the soft, low voice, everything to him who has ears to hear; but mostly we walk through life with wax-stopped ears, lest, perchance, we might, hearing, understand and be as the gods for wisdom.

"Yes," he answered, with quiet, unmoved matter-of-factness; "but if you had seen it raging and dashing against these very stones, as though it would tear them out of their bed"—and he struck his stick against the granite wall around them—"you would know that the sea is a very lion to roar, after all."

"True," she answered, absently. Her eyes looked wistfully out to where the light rose and fell across the heaving sea. "Yet," and she spoke with a dreamy intonation, as one tired with the subtle tiredness of contentment, "I shall always remember the Cragsleigh Sea as the emblem of peace and rest."

"I think I shall, too," he acquiesced. "We workers, Miss Boyle, need a little peace sometimes. Don't you find that you always link your holiday reminiscences with cloudless skies and a suspicion of the land where it is always afternoon?"

"Yes," she answered, simply, while a faint flush came and went on her cheek as he acknowledged their comradeship, "but that was perhaps because I enjoyed them best."

"You prove my case," he cried quickly, pleased with a man's love of power, that, even in small things, the strength of the argument should be on his side.

"Do I?"

She was content to have it so. She turned her face to him. Once more the moon threw its bright light upon it. It was an open page to read; but he saw nothing. Surely the dust must have been in his eyes as well as the wax in his ears, or he must have understood.

Up the pier the band was playing the last item on the program. There was a final crash, a final shriek of the violins—then silence.

"Where is Hilda?"

"With Mr. Carlmore at the head of the pier."

"At last!"

There was something decidedly unpleasant about the speaker's words; something unpleasant, too, about the voice; harsh it was in sound, jarring in ring.

"Yes, at last," repeated her companion, but in milder accents. "Come, let us look them up," she added.

"Wouldn't it be wiser"——

"No, no," interrupted Mrs. Slingsby; "such things always come to a head more quickly with a little judicious obstruction. A man makes up his mind all the more quickly for having the girl taken out of his hands a time or two."

"Very well."

Mother and daughter sauntered slowly up to the dreamers.

Hilda was still gazing out to sea, while George Carlmore was speculating idly what manner of future might be in store for the woman before him.

It did not concern him; no, not in the very least. He was particularly certain of that. But she interested him much in the same fashion as a rare beetle interests a collector, but hardly as keenly.

He was a student of men and women. As he in his half-mocking manner would have said, "it was his stock in trade," and he was perfectly aware that he had chanced upon an unusual specimen. He fully admitted her individuality; nay, more—he appreciated it, and in a dim way had an inkling that there were undercurrents of exceeding depth and strength in her nature. That there was more of shadow than of sunshine in her life, with its uncongenial surroundings and its soul isolation, he shrewdly suspected. She carried something of this in her face. More than once he had been prompted to perform little acts of thoughtfulness by the pain in her eyes; but it was from very much the same feeling as that which caused him to relieve an animal in pain, and quite as impersonal.

Love and Hilda Boyle in conjunction had hitherto never crossed his mind.

"Well, have you two finished star gazing?" Kate Slingby's high-pitched voice broke in on the stillness as a false note breaks in upon an exquisite harmony.

Hilda winced. Something more than the mere words jarred upon her, and George, too, felt himself ruffled without being conscious of the reason.

"I always have been accused of day dreaming," the girl said, and she made a nervous little gesture of apology, as though to prevent his dwelling upon the ill-timed remark.

"Have you?" he answered, in his most benign manner.

"I don't believe in mooning myself," explained Kate shrilly. "Hilda would be a great deal better if she were more like other people."

Carlmore looked down at the florid face and at the mass of untidy hair, which were visible enough in the moonlight, and a "God forbid!" rose to his lips, as his eyes wandered back to the wistful eyes and the intellectual profile of the girl by his side.

"Hilda has her style, my dear," put in Mrs. Slingsby, mindful of the main chance.

"Oh, of course, of course," amended Kate, seizing her cue.

The moonlight was merciful—it left the flush that rose to the girl's face invisible; but for the moment she stood motionless and silent in a very agony of shame, understanding the manuver, hardly daring to hope that he had not understood it, too.

He did nothing of the sort. He was busy with something else. He was speculating again. How was it that this girl came to be so different from her surroundings? It presented a nice little problem to him, and he would very much have liked to unravel it. It was clear that she owed neither her refinement nor her intellect to them. Then it struck him, as a kind of side light, what exceedingly unpleasant connections they would be.

"Enough to make a fellow think twice," he mused. But his solicitude was all for some other fellow.

He looked at her again. So calm, so still, with her great gray eyes and her cold manners. Yet had he not seen the icicle thaw? If she could warm into such life under a little congenial companionship, what would she——

He paused in his meditation.

"Yes," he thought, "I should like to see her in love."

Poor, blind fool!

Hilda walked home in a dream. All along the promenade, up the little lodging-house staircase, one thought kept repeating itself in her brain.

At the door of the sitting-room she paused.

"I am tired, aunt; good-night," she faltered.

She could not, would not enter to hear them tear away the vail from before her holy of holies.

Mrs. Slingsby received the statement unquestioningly. There were times when a certain good nature supplied in her the place of tact. It was Hilda's way, and if she liked it well and good, but it was not hers.

Not so with Kate, however.

"Well!" she insinuated, "you still people do know how to take care of yourselves when anything good comes in your way, it seems, after all."

Hilda's gray eyes contracted for an instant into two bright points of light. She half opened her lips to reply; then, as she drew up her supple figure, she turned hastily away.

"We needn't be so hoity-toity though we have caught a young man all to ourselves," sneered Kate, on whom the veneer lay, but thinly.

"Hush, Kate," interposed her mother. "Hilda is not like you, dear. Few can take things as you can."

Then, having appeased her daughter, and again mindful of the main chance, she called after the retreating figure:

"I'll bring you something warm up to your room in a moment or two, dear."

"No, no," Hilda returned—as much vehemence in her manner as she was capable of—"I want nothing, thank you, aunt."

Nothing—nothing but to be alone.

"Oh, yes," cheerfully insisted Mrs. Slingsby, in high good humor, "we must do something to bring the roses back before to-morrow."

"You are very kind," murmured the girl, wearily; and she wondered how long it would be before she might hope for solitude.

"Not at all. There, go to bed, my dear," returned Mrs, Slingsby.

"You see what it is to be a person of importance," cried Kate after her, unable to forego a little taunt.

"Kate!" reproved her mother again.

At length Mrs. Slingsby, after many fruitless endeavors, had been persuaded to withdraw, and Hilda was left to the solitude she craved. She drew aside the white curtain, opened the window, then, kneeling down, rested her arms on its ledge. A soft breeze touched her cheek; the murmur of the sea came up to her; her eyes sought the great blue above her, as though its stillness might help her to realize what was this—this something that overcame her. At first no clear thought seemed possible. Where another woman would have blushed, she trembled, and for the first few moments her whole frame shook in short, convulsive throbs.

What was it? What did it mean? A speck of bright light caught her eyes, the echo of a firm, springing footstep. She leaned forward to watch until the figure, with its lighted cigar, passed from her sight.

She knew who it was. Had she been in doubt—and she never was even for a moment—the opening and shutting of the little wooden gate belonging to the cottage garden next door would have decided her.

She drew back her head.

The trembling fit had passed away; her eyes once more sought the sky.

"I love him!" she said, softly.

The inarticulate tumult of her heart had found words at last. Galatea had come to life. She knelt on, breathing, palpitating, hardly able to credit the thing which her lips had uttered.

The church clock tolled the hour; it chimed a single stroke again; and still she never moved.

"I love him!"

The words ran riot in her brain, and filled all her being with a vague, delicious joy. At last, when another half hour had well-nigh winged its flight, the first perplexing doubt presented itself. With a long sigh she gave place to it. She had been in Paradise, and lo! even there was the serpent!

"Does he love me, too?" she asked of herself.

But the heavens were silent. There came from them no clear voice to pour assurance into her ear.

Quietly, systematically, with all her habitual method and coldness, she passed the events of the last fortnight, since the day she had first met him, in order before her. Her passion of a few moments ago might never have been, so calm was she.

Yes; here a look—there a tone. Stay! Was she so calm, after all? How her soul stirred within her!

Had he not sought her out, talked to her of his aims, appealed to her for sympathy, relied on her for comprehension?

Surely, surely, this must be love. No other man had ever turned to her, singled her out, set her apart, as he had done. Daisy had admirers in plenty; even Kate had not been without her share; only she had stood alone, only she had been cut off from this great gladness.

There had been moments when her heart welled forth its silent protest, when the dreariness of her lot appalled her. It was not that she craved for "love," as the term is generally understood. A man because he was a man had no special interest for her. But what she did ask was a little sympathy; someone to talk to of the things that filled her life, someone on whom she could rely. She could not remember either her father or her mother. She never had a sister. Kate, with her mental horizon bounded by bonnets and a somewhat unrestrained sense of admiration, was worse than useless. Daisy was her only refuge; and even Daisy, bright-eyed child that she was, could not minister to her intellectual requirements. It was this void that George Carlmore filled. She had thought of him as a pleasant friend—might, perhaps, have continued to do so until the end had not Kate's insinuations kindled another flame in her heart.

To-night she forgot all this pain. Softly she closed the window; softly she crept into bed.

She had tasted of the fruit of life, and how sweet it was! And the after taste?

Well, sufficient for the day is the evil thereof.

II.

It was fully daylight when Hilda awoke. She sprang from her bed, and drawing up the white blind looked eagerly out; then she shivered and drew back a little. She suddenly discovered that she was very cold.

It was one of those gray mornings which so often follow a glorious day of sunshine. Everywhere the light pierced, everywhere it lent a steel-like shade to the landscape. The sea was no longer a soft, shimmering bed, ready to rock the tired wanderer to rest on its bosom; it was hard, gray, pitiless as it dashed on the beach with a sullen roar. Far out, quite at the opening of the bay, there was no heaving water to hide the rocks; instead, they lay bare, their sharp points and steep sides fully exposed to view, while firmly wedged between two great masses were two or three long spars bearing silent witness to what had been and what was not. Even the plain, unornamental pier had been touched with the enchanter's wand last night, but it looked grim and bare enough as the girl turned her glance upon it.

Presently her eyes wandered to Woodbine Cottage. There was a strange mixture of eagerness and unwillingness about her glance. She would like to have looked upon it when the sun was shining; yet what could the daylight matter to it? It could not rob the honeysuckle of its sweetness, the rose-briar of its fragrance. True, but even it looked cold in this gray light.

Hilda left the window. The chill had crept from her limbs into her heart. Last night the one supreme fact—she loved him—had sufficed; to-day her heart clamored for fuller knowledge. She was not one of those women who could take to themselves the undignified attitude of winning the man they loved. It would have revolted her—nay, have been impossible to her. Her distrust of self would have stepped in there and have prevented her, in the same way that it stepped in now and prevented her seeing the situation clearly. The question of his love rose up before her and demanded a reply. Oh! Last night, carried away by her own emotion, she had been prepared to answer "Yes;" to-day she hesitated; yet to hesitate was torture. Pitifully she went through the examination anew. Each remembered trifle came before her, and then—was it instinct or only self-distrust—a whisper came to her that there was sadly little to build upon.

She could not believe it. Like a star of hope was the remembrance of her aunt and Kate. They had no doubt; they must know. It was only she, who was so ignorant—what did she know of a man or of his ways?

With her absolute honesty she acknowledged how few were her opportunities of judging. She had told herself over and over again that she was not as other women. She had hardly dared to hope that her hands would gather the precious fruit; and now, when it seemed in her grasp, she could not fold them and pass it by.

She lay down again, still pondering the question, in her heart growing more distrustful, each moment less certain. If only, she told herself wearily, she had a little of that self-confidence, of that world-and-all-things-in-it-are-made-for-me feeling that so amazed her in other girls it would be easier. But her self-analysis left her no loophole. She knew herself as she was, cold-mannered, warm-hearted, powerless to break down the barrier of reserve. The picture did not want a single characteristic—constrained, shy, unresponsive. She remembered them all.

Suddenly a new terror presented itself. Yesterday—it seemed to her that her whole life dated from then—she had met him, without consciousness; but to-day!

She covered her face with her hands.

"It was cruel! cruel!" she moaned.

The words forced themselves from between her clenched teeth, a bitter feeling of despair surged in her heart.

"Oh, Kate! Aunt," she wailed; "why did you tell me?"

How could she meet him, greet him, touch his hand, be decorously indifferent, yet sympathetic, with this secret before her? None of a woman's sweet dissimulation had been granted to her. There could be no putting of one's self aside—that was beyond her power. She would be awkward, shy, unresponsive, and he would mistake—perhaps be hurt.

She buried her face in her hands, two great tears gathered in her eyes and slowly trickled down her cheeks. The burden was very heavy upon her.

* * * * * * * * * *

"The meeting was not long delayed; George saw her wandering up and down the narrow strip of garden and came out to speak to her. He put his hand over the low fence that divided the two gardens.

"Good morning," he said.

She looked up at him, and in her eyes how good he was to look upon.

"Good morning," she faltered, and then because she felt she must say something, she added hurriedly:

"Daisy is coming this evening."

"And who is Daisy?" he asked in indulgent tones.

"My cousin," she answered; and, she might have added, but of course she did not, "the one bright spot in my life until I met you."

"Oh!" His tone did not evince particular pleasure; he could not see how a younger, therefore more pronounced, edition of Kate could add to his enjoyment.

It chilled her; the lightest suspicion of disapprobation on his part was henceforth to trouble her. She clasped her hands nervously together, and blundered out:

"Yes, my cousin. Kate's youngest sister, you know. I am sure you will like her; everyone," with an appealing glance, "likes her."

He never noticed the glance. What did the second Miss Slingsby matter to him? Why was he to like a young woman against his will?

"I am sure you will like her," Hilda repeated, more and more overpowered by her nervousness.

"I don't know about that," he told himself, irritably.

He took a few whiffs from his cigar, while she stood still, slowly plucking the leaves from a rose, her whole being one torture of consciousness.

"Did you like 'Faint Shadows?'" he asked, after a pause.

It was his work, and, however sure a man may be of the perfections of his own creations, he likes to hear it indorsed by someone else.

"Yes," she faltered. "Thank you for lending it to me."

Yesterday she would have added a word or two of appreciative admiration; a sentence of trenchant criticism. They would probably have differed, but there would have been something stimulating in the difference. To-day she was tongue-tied.

"I thought it might have interested you," he began, coldly, irritated by her apparent indifference.

"It did," she gasped.

The words she wanted would not come.

"Shall I give it back to you?" she added, saying the very last thing that she had meant to say; for had he not implied that the volume was for her, and had she a more prized possession?

"If you please," he answered, coldly, without an effort to conceal his displeasure.

The color left her face. George was examining his cigar in moody silence; there was to be no help from him. The lump in her throat swelled and grew; in another moment she must choke or cry; the tears were already close to her eyes.

She would save her dignity whatever else were lost.

"Aunt is waiting for breakfast, I think," she said. It took all her strength to keep her voice from faltering.

"Don't let me detain you," he answered, ceremoniously; "good morning."

Not a word as to future meeting, not an allusion to the probability of their finding themselves on the pier at the same hour. Hilda turned away, her face as calm, her manner as deliberate as ever, but in her heart was the bitterest pain that even she, who had sat in the school of pain for many a long day, had ever known.

She walked straight through the rickety French window into the little dining-room. There was no hesitation about her movements. She was not one of those people who require preparation for an ordeal; she would rather do a disagreeable thing then and there and get it over.

Now to face Kate, who she foresaw would be bristling with inuendo, was something more than disagreeable. Still, as she told herself with a touch of grim humor, after one has been broken on the wheel, the thumb-screw must seem a very second-rate sort of affair, and this was about the proportion her meeting with Kate bore to that of Carlmore.

Both Mrs. Slingsby and Kate were seated at the breakfast table when she entered. Kate's mouth was drawn down with a perplexed curve; her forehead had an unusual crease across it. She held an open letter in her hand.

"Good morning, aunt," said Hilda, in her steady, grave voice.

At the sight of her cousin, Kate's brow uncreased itself.

"I have it!" she cried.

"Well, dear," responded Mrs. Slingsby, encouragingly.

Hilda waited in silence for what might follow. It was clear that for the moment, at any rate, she was forgotten. She drew a long breath. Not until she measured it by the standard of her relief at this trifling postponement did she realize how she dreaded the ordeal.

"Hilda," commenced Kate, after a moment's deliberation, "do you know Daisy is coming this evening?"

"Yes," assented the girl in her unmoved voice.

Yet was it not her own gleam of sunshine? There was never a sunflower turned its head to the sun with greater joy than her poor heart turned itself toward this bright child; only the sunflower opens her great yellow crown in token of gratitude, and she could not so much as smile her pleasure.

"I thought you would be glad," continued Kate, sharply; "but, perhaps"——

"I am," interrupted Hilda, hastening her words for fear of what might come next; "only you see I have had a letter from Daisy myself. So your news does not exactly come in the light of a surprise."

"Oh!" murmured Kate, sweetly. She was in the mood to accept the olive branch. "I understand; and you see," she continued, "mother" (who, as it happened, had no word in the matter at all) "and I thought you would not mind having Daisy to yourself for one evening. The Hewitts have asked us to go over for a night. Tom" (with a conscious simper) "is at home again, and—well" (with an exaggeration of maidenly embarrassment) "we used to be very good friends. You won't mind Daisy for one evening; will you? Indeed, I thought you would like it."

"I should," Hilda replied, as she absently lifted her empty cup to her lips and set it down again.

In her heart she was asking if Kate's simper and her misery of consciousness were one and the same thing. She felt that she would prefer to think they were not.

"What a queer girl you are!" exclaimed Kate. "I don't believe you care a rush for anything. I thought you would be delighted. You used to be almost fond of Daisy."

Almost.

"Do you want me to meet Daisy?" Hilda asked, ignoring the taunt.

"Yes, if you will be so kind, dear," Mrs. Slingsby interposed.

"I don't doubt that you can find a companion," added Kate, whose memory had been jogged by her mother's smooth tones.

"At what time does Daisy's train get in?"

Kate held her peace, defeated for once. There is nothing so baffling as a person who will not understand.

"At —" began Mrs. Slingsby. "Dear me, where is the letter? Didn't she tell you?" turning to her niece.

"No; but let me help you to look for the letter. Did you open it in your room? Let me see if it is on your dressing-table."

Hilda felt that a moment's solitude would be a positive mercy.

Kate, however, produced the missing epistle from her pocket.

"At 5.15," she said; "and we," hastily turning over the pages of the railway guide, "go at 4.05."

Then followed an animated discussion on costume, in which Hilda was constrained to take her part for fear of what might be said if she did not.—*All the Year Round.*

HORATIUS AT THE BRIDGE.

Now the Consul's brow was sad,
And the Consul's speech was low,
And darkly look'd he at the wall,
And darkly at the foe:
"Their van will be upon us
Before the bridge goes down;
And, if they once may win the bridge,
What hope to save the town?"

Then outspake brave Horatius,
The captain of the gate:
"To every man upon this Earth
Death cometh soon or late.
And how can man die better
Than facing fearful odds
For the ashes of his fathers
And the temples of his gods?

Hew down the bridge, Sir Consul,
With all the speed ye may;
I, with two more to help me,
Will hold the foe in play,—
In yon strait path a thousand
May well be stopped by three.
Now who will stand on either hand,
And keep the bridge with me?"

Then outspake Spurius Lartius,—
A Ramnian proud was he:
"Lo, I will stand at thy right hand,
And keep the bridge with thee."
And outspake strong Herminius,—
Of Titian blood was he:
"I will abide on thy left side,
And keep the bridge with thee."

"Horatius," quoth the Consul,
"As thou say'st, so let it be."
And straight against that great array
Forth went the dauntless Three.
Now, while the Three were tightening
The harness on their backs,
The Consul was the foremost man
To take in hand an axe;
And Fathers mix'd with Commons
Seized hatchet, bar, and crow,
And smote upon the planks above,
And loosed the props below.

Meanwhile the Tuscan army,
Right glorious to behold,
Came flashing back the noonday light,
Rank behind rank, like surges bright
Of a broad sea of gold.
Four hundred trumpets sounded
A peal of warlike glee,
As that great host, with measured tread,
And spears advanced, and ensigns spread,
Roll'd slowly towards the bridge's head,
Where stood the dauntless Three.

But now no sound of laughter
Was heard amongst the foes.
A wild and wrathful clamor
From all the vanguard rose.
Six spears' length from the entrance
Halted that mighty mass,
And for a space no man came forth
To win the narrow pass.

But, hark! the cry is Astur:
And, lo! the ranks divide;
And the great lord of Luna
Comes with his stately stride.
Quoth he, "The she-wolf's litter
Stand savagely at bay;
But will ye dare to follow,
If Astur clears the way?"

Then, whirling up his broadsword
With both hands to the hight,
He rush'd against Horatius,
And smote with all his might.
With shield and blade Horatius
Right deftly turned the blow;
The blow, though turned, came yet too nigh,
It missed his helm, but gash'd his thigh.
The Tuscans raised a joyful cry
To see the red blood flow.

He reeled, and on Herminius
He lean'd one breathing space,
Then, like a wild-cat mad with wounds,
Sprang right at Astur's face.
Through teeth and skull and helmet
So fierce a thrust he sped,
The good sword stood a handbreadth out
Behind the Tuscan's head.

But meanwhile axe and lever
Have manfully been plied,
And now the bridge hangs tottering
Above the boiling tide.
"Come back, come back, Horatius!"
Loud cries the Fathers all;
"Back, Lartius! back, Herminius!
Back, ere the ruin fall!"

Back darted Spurius Lartius;
Herminius darted back;
And, as they passed, beneath their feet
They felt the timbers crack;
But, when they turn'd their faces,
And on the further shore
Saw brave Horatius stand alone,
They would have crossed once more.
But, with a crash like thunder,
Fell every loosen'd beam,
And, like a dam, the mighty wreck
Lay right athwart the stream:
And a long shout of triumph
Rose from the walls of Rome,
As to the highest turret-tops
Was splashed the yellow foam.

Alone stood brave Horatius,
But constant still in mind,—
Thrice thirty thousand foes before,
And the broad flood behind.
"Down with him!" cried false Sextus,
With a smile on his pale face;
"Now yield thee," cried Lars Porsena,
"Now yield thee to our grace!"

Round turn'd he, as not deigning
Those craven ranks to see
Nought spake he to Lars Porsena,
To Sextus nought spake he;
But he saw on Palatinus
The white porch of his home;
And he spake to the noble river
That rolls by the towers of Rome:

"O Tiber! Father Tiber!
To whom the Romans pray,
A Roman's life, a Roman's arms,
Take thou in charge this day!"
So he spake, and, speaking, sheathed
The good sword by his side,
And, with his harness on his back,
Plunged headlong in the tide.

No sound of joy or sorrow
Was heard from either bank,
But friends and foes in dumb surprise,
With parted lips and straining eyes,
Stood gazing where he sank;
And, when above the surges
They saw his crest appear,
All Rome sent forth a rapturous cry,
And even the ranks of Tuscany
Could scarce forbear to cheer.

But fiercely ran the current,
Swoll'n high by months of rain,
And fast his blood was flowing;
And he was sore in pain,
And heavy with his armor,
And spent with changing blows:
And oft they thought him sinking,
But still again he rose.

And now he feels the bottom;—
Now on dry earth he stands;
Now round him throng the Fathers
To press his gory hands.
And, now with shouts and clapping,
And noise of weeping loud,
He enters through the River Gate,
Borne by the joyous crowd.

—*Lord Macaulay.*

AMERICAN HOGS.

Who Introduced the Animal into this Country?—Descent from the Original Stock.

BY R. M. BELL.

The domesticated hog was not found in the New World by the Spanish discoverers. The Indians had none of the then known domestic animals, and the few wild animals that were tamed in North America were not cultivated by white men. Columbus introduced the industries into his colony in Hispaniola in 1493. Nothing was omitted that could give character and perpetuity to his settlements in the West Indies. It was the desire of his heart that the colony should be prosperous and self-supporting. All classes of domestic animals are mentioned and often referred to by domestic historians of the times. The supplies for Cuba, Mexico, and the many colonies established by the Spaniards, and we doubt not all the American colonies, were obtained from the West Indies. They throve and multiplied wondrously.

The first swine introduced into regions now a part of the United States were the 300 taken by De Soto on his ever-to-be-celebrated-and-sadly-disastrous expedition in Florida in 1529. To those who may not have studied the resources of the Territory then called Florida, it may seem impossible that these swine could have been preserved during those four years of hardship by travel, wars of conquest, and fierce battles that were so destructive to the Spanish resources. We are carefully informed that during the terrible voyage in the wilderness these swine were carefully preserved and multiplied to 1,500 head. The intention and fond hope of De Soto was to found a colony somewhere. He believed these hogs would be a quick and reliable supply of food; he knew the resources of the country since he found some unfortunate Spaniards that had been lost and abandoned by former attempts at exploration and colonization in the country. Only once or twice is mention made of the Spaniards using these swine to satisfy their own hunger, severely as they were pressed for food. The Indians destroyed many; some were stolen; they strayed away, often lost. Mention is repeatedly made of giving presents of hogs to the Indian Chiefs to conciliate and encourage them in more civilized life, and finally mentioned by De Soto in his will on the banks of the Mississippi River at the confluence of the Red.

The last mention of the herd was that some were killed and prepared as a part of the stores while the 311, all that remained of the Spaniards, descended the Mississippi River in their barges to the Gulf of Mexico. There can be no doubt that the hogs were left in Florida, Georgia, South Carolina, North Carolina, Alabama, and Mississippi, then a small part of Florida, and that there they remain to this day. There has been no modifications save the natural influences of a curious but bountiful food supply. Just what these swine were like 363 years ago, when they were introduced, is not known. Whether the environments has changed the type favorably or otherwise cannot be arrived at now. Judging them by the cattle, sheep, and possibly dogs, we may conclude they are similar to those first brought there. To us they seem entirely wanting in useful qualities, save the one essential characteristic for occupying the place they hold—hardiness. The piney woods hog is thoroughly indigenous to that situation, and can be relied upon to stay without the fostering or destructive hand of man. They had a beginning; they have a history; they have been useful, and they have a destiny peculiarly and exclusively their own. They are capable of improvement, but not under the present condition of things. Some definite systems of agriculture will gradually change these swine into something more useful than now would seem possible. They make, as they are abundant and cheap, supplies of good bacon when in fat condition. As a rule, they are not held in high estimation.

Straws.

Oregon has 25,885 farms, and of these there are 3,150 which are provided with irrigation facilities.

The Mississippi River carries to the Gulf of Mexico every year 10 square miles of soil 26 feet thick.

Although the work of the recent census is not completed, it is estimated that about 22 per cent., or 17,000,000 people, secure a living by agriculture.

Mexico and Texas raise the mesquite bean, which, when browned and ground, very closely resembles Java coffee, both in its appearance and odor.

Out of 134 members of the Louisiana Legislature, 62 are farmers. This is the largest proportion of farmers that the Legislature has had since the war.

While plowing in a field during a thunder storm on June 6, Wm. B. Weaver, a farmer living near Springfield, Ill., was struck by lightning, and he and his horses almost instantly killed.

The officers of the Egyptian salt department have recently made an important discovery of salt at a point on the Nile about 150 miles from Cairo. The deposit is said to extend over an area of 1,000 miles, the salt yielded being of an excellent quality.

To destroy obnoxious ant-hills bisulphide of carbon can be effectively used. Its fumes are destructive to animal life, and by making a hole in the hill, and inserting a quantity of the bisulphide, its poisonous fumes penetrate the hill, and the ants are soon destroyed.

The *Kansas Farmer* says: "The census of 1890 shows that there were 32,953,927 pounds of maple sugar, and 2,258,327 gallons of maple molasses, made in this country in that year. The romance of the sugar camp has departed, but the camp is still in existence and does a good business, especially in New York and Vermont."

Throughout the West Indies there grows a tree known as the lace-bark tree. It is very lofty, and has smooth leaves and white flowers. The inner bark is very tenacious, and after maceration can be separated into thin layers resembling lace. It is said that a Governor of Jamaica at one time presented Charles II. with a cravat made of this bark.

Throughout the Western States the planting of corn has been greatly delayed by the continued lowness of the temperature and the almost incessant rains. There have been very few years in the past in which so little corn has been planted, or so little of the ground plowed, up to May 15. Indications point, however, to the production of a good crop, if the seed be planted any time during May.

The chinch bugs may yet be successfully and lastingly exterminated, says Prof. Snow, of Kansas, by the spreading among them of an infectious disease, such as cholera among human beings. The organism producing the disease is a fungus parasite, of which three varieties have been found. The introduction of a few diseased bugs among the others will cause the spread of the disease, and the insects will soon succumb.

The Texas farmers are devoting part of their attention to Bermuda grass, or "dhab," as it is called by the natives of India, whence it comes. This grass has been experimented with in Mexico, the West Indies, and the southern United States, and it is found that all animals like it, and fowls fed upon it fatten quickly and lay well. Horses thrive upon it also, and eat it either green or dry.

The central part of Maine, in the vicinity of Piscataquis County, is overrun with deer to such an extent that they are becoming a nuisance to the farmers. They roam around in the fields to their heart's content, destroying crops and working other damage. The farmers are afraid to shoot or molest them on account of the strict laws for their protection. It is said that the farmers will petition the next Legislature to pass a law providing for the payment by the State of all damages done by deer during close time.

The using of limewash for covering barns and outbuildings is almost an universal custom, and this mixture recommends itself by reason of its cheapness and utility. The lime serves as a preservative for the wood, and is fatal to many of the insects which gather on and about the buildings. A waterproof wash can be made by slacking a peck of fresh lime in a barrel of hot water. It becomes like a thin paste, and should then be skimmed with boiling water to the consistency of thin cream. A pound of boiled rice flour is stirred in, and then two pounds of soap or tallow are sliced and added to the liquid, which is strained and used while hot. The glaring white color, objected to by some, may be avoided by adding water lime to make gray, or burned umber to make brown.

Fertilizing.

A complete fertilizer must contain the three elements of plant food—nitrogen, phosphoric acid, and potash—but these must be had in proportion to the requirements of the crop in question. Some need more of potash than others, and others need more nitrogen, etc.; therefore such fertilizers should be mixed accordingly. Experience has plainly shown that land will certainly become exhausted unless by means of fertilizers it is supplied with that which plant life takes from it. An old idea is that rotation of crops would prevent exhaustion, but this is a mistake. It is only since artificial fertilizers have been used that the real science of agriculture has been understood. These are mainly bones, lime, ashes, and phosphates, and without them it is impossible to keep the land fruitful.

BUREAU OF INFORMATION.

J. B. Hendershott, Galena, Ill.—No; Presbyterianism is not dying out in this country. On the contrary, it is enjoying a very vigorous growth. The census of 1880 showed the following number of communicants in the four principal branches of the denomination:

Presbyterians, North	573,176
" South	190,088
" United	80,830
" Cumberland	110,000
Total	784,036

The census of 1890 shows they had:

Presbyterians, North	788,224
" South	179,721
" United	94,402
" Cumberland	164,940
Total	1,227,287

This shows a very decided growth, and a net increase of nearly 40 per cent. in the North; almost 50 per cent. in the South; 17 per cent. in the United, and nearly 50 per cent. in the Cumberland.

A. G. Bascom, Tuscaloosa, Ala.—The only countries which now maintain free coinage of silver are India, Japan, Mexico, and several of the South American Republics.

M. B. Walker, Aniston, Ala.—Strictly speaking, there are only two kinds of cousins—cousins-german or "own" cousins—that is, the children of your father's and mother's brothers and sisters, and ordinary cousins, which includes all descendants of cousins. There have been strenuous attempts to still further define degrees of cousinship, but life is too short for anybody, except elderly ladies with a taste for genealogy, to follow up and regard the distinctions between the various degrees. There was at one time, and still is in some parts of Europe, a custom of calling "cousins" those only within the fourth degree of relationship—those outside that being styled "quater-cousins," or cater-cousins."

W. H. Bellingham, Pen Yan, N. Y.—Historians generally agree that in Roman times an ounce of gold was worth nine ounces of silver. For 1,000 years or more thereafter, the world's finances were in such a chaotic state that little is known of the comparative values of the two metals. The first record of any value is in the books of the British Mint in 1344, when gold was rated as 12½ times more valuable than silver. The same books give the value of gold in 1509 as 11½ times that of silver. In the next 100 years silver reached its highest recorded value—11.1 ounces, being equivalent to one ounce of gold. Then it began to steadily decline, and at the beginning of this century an ounce of gold was worth 15.68 ounces of silver. Since then the comparison has been as follows:

In 1801 one ounce of gold was worth 15.46 ounces of silver; 1810, 15.77; 1820, 15.62; 1830, 15.82; 1840, 15.63; 1850, 15.70; 1860, 15.29; 1870, 15.57.

Silver was demonetized in this country in 1873; by Germany, Norway, Sweden and Denmark in 1872-3-4; by Holland in 1875; Russia in 1876; France, Italy, Spain and Switzerland in 1878, and by Austro-Hungary in 1879. Since 1873 the ratio between the two metals has been—

In 1873 one ounce of gold was worth 15.92 ounces of silver; 1874, 15.17; 1875, 16.59; 1876, 17.86; 1877, 17.22; 1878, 17.94; 1879, 18.40; 1880, 18.06; 1881, 18.16; 1882, 18.19; 1883, 18.64; 1884, 18.57; 1885, 19.41; 1886, 20.78; 1887, 21.13; 1888, 21.99; 1889, 22.00; 1890, 19.76; 1891, 20.92.

In 1873, silver was worth $1.30 an ounce. Last March it reached the lowest price ever known—85½ cents an ounce. It is now worth about 87½ cents an ounce.

THE AMERICAN FARMER.

"O fortunatos nimium sua si bona norint agricolas."—VIRG.

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THE IMPORTATION OF ANIMALS FREE OF DUTY.

THE AMERICAN FARMER has already explained to its readers the misunderstanding which accounted for the excessive requirements of the Treasury Department's circular of Jan. 22, making regulations for the importation of animals free of duty for breeding purposes. That circular has now been withdrawn, and on the recommendation of the Secretary of Agriculture, a new circular has been issued. Under the regulations now in force, animals to come in free of duty must be themselves recorded, the sire and dam must also be recorded, and evidence must be submitted that the dam has not less than three top-crosses by registered sires of the same breed.

As sheep, especially ewes, are in some cases recorded abroad by flocks and not individually, an exception is made in regard to these animals, and they are admitted on showing a proper certificate that the animals imported are themselves recorded in a recognized flock-book.

These regulations are moderate enough in their requirements to allow pure-bred animals to be imported without difficulty, and at the same time they are sufficiently stringent to prevent the admission, except by paying duty of cross-bred animals or others of unknown pedigree. The present tariff law was designed to protect agriculture as well as other industries, and while it admits pure-bred animals calculated to improve our native stock, it very properly places a duty upon those which are not pure bred, and which are brought to our markets to compete with the stock raised upon our own farms.

An examination of the requirements for registry in foreign books of record discloses the fact that in most cases these are very defective. Some associations have been recording animals of unknown breeding on the payment of a suitable fee, and too many of them consider a stallion or a mare eligible for record if it has only one or two crosses by pure-bred sires. It is freely admitted that a number of these registry associations were established for the sole purpose of selling animals in the American market which were otherwise unsalable. That is, a horse to sell at a good price for breeding purposes in the United States must be recorded and have a pedigree, and the foreign breeders combine into associations and very obligingly register everything in sight without any inconvenient scruples for purity of blood.

When the first circular requiring evidence of purity of breeding for admission free of duty was issued, it was extremely amusing to watch the comments of the English agricultural press. Some writers appeared almost frantic, hurling the most unstinted abuse at Secretary Rusk for his recommendations in the matter, accusing him in one line of ignorance, and in the next of an attempt to retaliate for the injustice of the British Government toward the American cattle trade. It was reserved for the North British *Agriculturist*, however, to reach the highest degree of absurdity in deliberately explaining to its readers that "the Washington Government is largely dominated by the Tammany Ring," and that this ruling was "the Tammany-Ring standard of purity." No doubt this information will prove an eye-opener for American politicians, who, although they have long given this Democratic organization credit for much shrewdness, have not before suspected that it was quite equal to the task of dominating a Republican Administration at Washington. Our British cousins must have the credit of making this wonderful discovery.

The criticisms of a portion of our American agricultural press have been almost as ridiculous as those of their British contemporaries. They attacked the January regulations with the greatest vehemence, because they required a pedigree containing 46 recorded ancestors. They object, with the same emphasis, to the circular of May 2, which only requires five recorded ancestors in the pedigree.

These journals are championing the cause of the speculator, not of the farmer. It is the speculator who wishes to buy horses having but one or two crosses, which can be picked up at comparatively low figures, and, after bringing them to this country, sell them for from $1,000 to $2,000 each, on the strength of a foreign record which is not worth the paper it is printed on. It is the farmer who gets swindled in this transaction; but, on the other hand, it is the speculator, and not the farmer, who does the advertising.

What kind of requirements would satisfy those editors who have the interests of the speculators so at heart? One journal, which assumes to speak for the breeders of the country, tells us with great frankness that the certificate of record in a foreign register should be sufficient evidence of purity of blood, and that the Treasury Department is given no authority by the law to go beyond this. What a beautiful arrangement that would be—for the American Congress to say that no animal should be admitted free of duty unless it is pure bred, and then for the Treasury Department to permit the unscrupulous foreigner and speculator to turn their mongrel and cross-bred stock into pure bloods by recording them in stud-books established for this very purpose! Such a law would be an object of ridicule abroad, if it were not at home.

Now, a word as to the legal authority of the Secretary of the Treasury to make regulations requiring evidence in addition to record to show the purity of blood. Has our contemporary carefully examined the wording of the law? It reads: "No animal shall be admitted free of duty unless it is pure bred, of a recognized breed, and recorded in the book of record established for that breed." It is one of the first principles in the interpretation of a statute, that every word means something, and that no words are inserted without a purpose. If animals must be admitted simply on certificate of record in a foreign book, why is the law so careful to specify, in addition, that they must be pure bred? Why is the Secretary of the Treasury given specific authority to make regulations on the subject? We advise our esteemed contemporary to consider the matter further before it advises its readers to incur the expense of taking the question into the courts for a decision.

One of the first effects of the circular which required an animal to be pure bred, as well as recorded, to secure free entry, was the vote in the English Hackney Horse Society of more than two to one against the further admission of "inspected" mares into that society's book. This question had been under discussion for a long time, but while inspected mares could enter the United States duty free, and be palmed off on unsuspecting buyers as pure bred, it was impossible to secure any reform. As soon, however, as the American market for these mongrels was closed we find an overwhelming majority in favor of shutting the books against them. The cablegram announcing this action gave the whole case in a nutshell when it stated that "the chief argument against the adoption of the proposition [to admit inspected mares] was that, under the recent ruling of the United States Treasury Department, inspected mares are not to have free entry, and the American market for hackney horses is the richest and most active in the world."

The London *Field*, which shows more intelligence and candor than most of its contemporaries in its discussion of this question, frankly says: "We have no hesitation in saying that, for their own purpose, the American Government is entirely right. Let one admit, for argument sake, that it is politic for a Government to interfere with imports (an opinion which, individually, we do not hold, though the American majority does), and it follows that it is worth while to tempt in as much concentrated blood—as many long-descended animals—as possible, and to keep out the grades which can be produced in America itself to almost any extent." In the same article it is stated that "it is an open secret that half these registers would never have been undertaken at all, but from the idea that they were to be the means of securing the foreign trade."

Without giving our reasons in this article for considering cross-bred animals as next to worthless for breeding purposes, we are willing to let the whole question turn on the point as to what is necessary to carry out the plain intention of the law. The law says animals to be admitted free of duty must be pure bred and recorded. The speculator says if an animal is recorded in a foreign stud-book, that should be sufficient evidence that it is pure bred. It is notorious, however, that horses which are not pure bred are recorded in the foreign books. It is plain, therefore, that, if the purpose of the law is not defeated, importers must be required to show evidence that their animals conform to some standard of purity, or otherwise that duty must be levied upon them. Grades and mongrels are dutiable when imported from Mexico; why should they not be when imported from England?

THE man of brains and energy "longing for a career" has no business leaving a farm nowadays. He can put all the brains of a Webster or a Napoleon onto the development of a 100-acre tract, and find they will yield a rich return.

CALIFORNIA is to send an interesting exhibit to the World's Fair in the shape of an immense incubator, made from native redwood, for the hatching of ostrich eggs. It will be made to accommodate 28 ostriches.

THE AGRICULTURAL APPROPRIATION BILL.

We feel that, while doing well as a general thing in the Agricultural Appropriation Bill, the Committee on Agriculture has made a serious mistake in such strong reductions in the allotments for the scientific work. The report of the Committee, which was made the basis of the House's action on the bill, makes the following reductions:

In the Division of Botany	$10 000
In the Division of Biological Investigation	10 000
In the Division of Vegetable Pathology.	5 000
In the Division of Fiber Investigation..	5 000
In the Division of Manufacture of Sugar	5 000
In the Division of Entomology	10 000

All of these will seriously cripple the work of the Department, particularly the reductions in the Divisions of Entomology, Biology, Vegetable Pathology, and Fiber Investigation. The amount appropriated leaves barely enough for the Department to continue its present work in the office, without any provision to meet emergencies, which are certain to occur.

For example, the orange-growers of Florida are complaining much of a disease which is committing great ravages in their fruit. The Division of Vegetable Pathology has sent an expert there, who is making a careful study of the matter to discover the cause and apply the remedy. There is little doubt of his ultimate success, and this will save the orange-growers of that State hundreds of thousands of dollars. But if the reduction of $5,000 is made, the expert will have to be recalled, and his work suspended. This would be a great hardship to that important interest, and $5,000 is an exceedingly paltry amount in comparison with the importance of the work to this great interest. There are other branches of work in this Division which are almost as important and pressing as that relating to the orange disease.

Then there are constant calls upon the Bureau of Animal Industry to make special researches into diseases appearing among herds and flocks in various parts of the country. Nothing can be done in this direction with the limited appropriation, because this will admit of nothing beyond the ordinary routine work of the office.

The Division of Entomology has the work of investigating and checking the ravages of injurious insects, such as the potato bug, the grasshopper, hop-louse, etc., and there are constant calls upon it from the various States, during the growing season, for methods of dealing with newly-developt forms of pests. With its diminished appropriation it can do very little in this line, and the farmers will have to go without the relief that they should have.

Instead of being cut down, all these Divisions should really have more money than they have been allowed, for every dollar is spent in the direct interest of the farmers of the country, and no money that goes out of the Treasury brings a richer return upon the investment.

The Committee has applied the money saved by these reductions to increasing the seed distribution. However important the latter may be, it does not compare with the scientific work of the Department. It may be well enough to appropriate $30,000 more to give the farmers more seeds, but this should certainly not come from the money needed to save the farmers from losses which will run into millions in a single year.

TO MAKE MONEY PLENTIFUL.

How much money there would be in the country if we did not send so much out of it! There is calculated to be $1,500,000,000 in gold, silver, and paper in circulation in the United States. The Secretary of the British Embassy at Rome estimates that American tourists spend every year $35,000,000—nearly $3,000,000 a month—in Italy. Our Secretary of the Treasury, reports that our people spend not less than $92,000,000 in gold every year in Europe. Then we send about $200,000,000 a year in gold abroad to buy farm products, which we should raise at home. Altogether fully one-half of the entire amount of money in the country is sent out of it every year to buy foreign products. Of course very much of it comes back to us in purchase of our products, but tens of millions of dollars are lost to our circulation every year by being scattered abroad. The way to make money more plentiful in this country is to keep more of it at home—by buying our own products instead of those of foreign countries.

A NEW law has just gone into effect in Ohio which will tend to increase the profits of sheep-raising by diminishing the loss by worthless dogs. Township Trustees are empowered to pay damages for all sheep killed in the Township. The sheep-owners must present a detailed account of the injuries done their flocks to the Trustees, and the same must be sworn to. The evidence of two witnesses can be taken, and an allowance of 50 cents each be made the witnesses. The Trustees have discretion as to the allowances to be made, and the sum granted, with the witness fees, is reimbursed from the County Treasury. If the amount of the damages could be assessed upon the owners of the dogs in the County, a much happier day would dawn for the persecuted sheep-raiser.

THE MONTHLY CROP BULLETINS.

Hereafter the monthly crop bulletins from the Agricultural Department will be confined to a mere statement of the percentage totals by States, without comments of any kind. This is a victory for Gen. Hatch, the Chairman of the House of Representatives Committee on Agriculture, and several Boards of Trade. In speaking of the matter Gen. Hatch said:

That part of the bulletin was ordered to be omitted by a unanimous vote of the Committee, so that hereafter it will be impossible for any one man in the Agricultural Department to circulate his opinions through the medium of a Government publication. During the past 12 years in which I have been observing these bulletins Mr. Dodge has been at all times upon the bear side of the market. He has never been able to figure out for the farmer any hope for an advance in prices, any better prospects for their crops in the future, but has concontinually used his figures in indicating lower prices, and in the judgment of the Committee this conduct was in the interest of boards of trade throughout the country.

This is only one side of the case. Statistician Dodge has doubtless a sufficient reply to make when he chooses to do so. He is a capable, upright official, devoted to his work and to the interests of the public, and conscientious in the discharge of his duties.

CULTURE OF RAPE.

We present in this issue an article of unusual value by Prof. Thomas Shaw, of the Ontario Agricultural College, on the Cultivation of Rape. This is a matter of the highest importance to all farmers in the more northern section of the country, where the growing of rape is certain to be very profitable, and there is no man in the world better informed upon the subject than Prof. Shaw. He has conferred a special favor upon the readers of THE AMERICAN FARMER in his masterly presentation of the subject.

IN spite of the jokes against baldheaded men which have been the practice of thoughtless and very young persons since before Elisha's day, statistics show that baldheaded men are, as a rule, estimable persons. There are comparatively few of them in jail. A recent examination of a penitentiary in which there were 231 male prisoners showed but 16 baldheads. In another, of 231 male prisoners, only 19 were scant of hair. We anticipate that some irreverent rascal will say that this is because baldheaded men are generally too cunning to get caught.

THE Ohio farmers are seeing a reason for earnestly supporting the Pure Food Bill. They have been buying coffee which, upon close examination, has been found to be largely adulterated with imitation beans made of clay. They object to paying 30 cents a pound for what they would sell at $100 an acre or less.

THE AMERICAN FARMER has heretofore spoken of the probability of some device in the near future to reduce farm drudgery by storing up the power of the wind. Mr. James Mitchell, of Atlanta, Ga., has already patented in Canada a device by which an electric dynamo is mounted on a standard and driven by a wind-wheel, which stores up the electricity in a secondary battery, ready for use as wanted.

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My Mornin' Nap.

On the sunny side of forty, when my bones was full o' sap,
I didn' care so mighty much about my mornin' nap;
I'd liked to ' eat the sun hisself a gittin' out o' bed,
An' watch him fling his banners up o' yaller an' o' red,
An' see the shadders sneak away an' hide amongst the trees,
An' hear the birds a-twitterin' an' feel the mornin' breeze.
At five o'clock, the whole year roun', I'd never fail to rouse,
An' Mary'd cook the breakfus' while I'd go and milk the cows.

But many a thing is changed since then, and somehow this old chap
Has changed the most o' all, I guess, an' now my mornin' nap
'S the best thing that I git all day; I don't care nary red
To hear the birds er b at ol' Sol a'gittin' out o' bed.
There ain't no birds ner risin' sun in all the earthly zones
Kin drive away my rheumatiz and limber up my bones
Like lyin' still o' mornin's, in a gentle sort or drowze
While Mary cooks the breakfus' an' the hired man milks the cows.

—*Carrie Blake Moryan, in Chicago Tribune.*

By The Editor's Fireside.

IN THE family circle there is no more disagreeable person—one who can make the household more miserable, more deeply unhappy, carrying that unhappiness out into the world as its members go—than what I may term the "Small-Things Fiend," especially if that names the mother or homekeeper. The "Small-Things Fiend" is never contented if there is the slightest variation from the ordinary conditions of the house, or if a change is made in the disposition of a single article of furniture. Trifles light as air, little things that amount to absolutely nothing, make the key-notes to a miserable day, which would not be so bad if she did not make everybody around her correspondingly miserable. The merry, rollicking boy, who has been running through the fields, chasing the butterfly, flying his kite, and in a general way enjoying his boyhood's life, comes in to tell his mother some incident that is full of interest to him, or to show her one of the many wonders which he is constantly finding, and he leaves upon the spick-span clean floor the mark of a muddy boot. "Ah, then and there is hurrying to and fro," as she rushes for mop and water to efface the stain, while she turns a deaf ear to the boy's words, and makes him feel that she has no sympathy with what he likes, and that a clean floor is the most important thing in her daily existence. By this one act she starts up a train of thought in his youthful mind that casts a shadow upon his love for her, and repeated day by day in things of equally small importance, there can be but one result. She will wonder, when he arrives at manhood, that she does not receive from him the same tender love and reverent treatment that other boys accord to their mothers, never dreaming that she herself has killed out his affection through her devotion to trifles.

I well remember visiting in a house where the homekeeper, a bright, pretty woman, attractive in conversation, gentle and kind, still made the life of those around a burden, because of her belonging to the class I name "Small-Thing Fiends." One day I brought a book from the library, and spent an hour delightfully in its pages; then a caller came, and I closed and laid it aside upon the table or stand with one or two papers and magazines already there. Within the next 10 minutes the book was back upon the library shelf. Had I not been aware of this idiosyncracy of my hostess, it would have made me exceedingly uncomfortable; as it was, I whispered to my perturbed spirit a soft "Never mind," and let the matter go, taking care, however, not to repeat the offense.

The "Small-Things Fiend" will do more within 24 hours to make people feel restless, dissatisfied, and generally out of sorts than any other person I know. Trifles that are really trifles in every sense of the word, will grow into mountains in her sight, and she will not rest satisfied until she makes everybody else look at them in the same way. Of course there is such a thing as being careless in little things that will, if permitted, upset a household; but it is easy to see what those are, and to avoid them without obeying any cast-iron rules of order.

An individual entirely opposite in character is that one, the burden of whose life is, "I don't care." This is a happy disposition, when it is not carried too far, and such an individual is proof against those things both great and small, which bring the lines into the face, and make each day heavy with care. In the Washington *Capital* were some lines which expressed what I mean much better than I can. They are as follows:

There is one who's truly lucky;
'Tis the man who never frets,
Who is smiling, gay and plucky
At each evil that besets.
Never pausing grief to borrow,
All his woes are puffs of air;
He dismisses every sorrow
With an

I
Don't
Care!

He is proof 'gainst the mutations
Of that mischief-maker, Time;
He will meet dark machinations
With indifference sublime.
What's the use of toil and hurry?
Wherefore dally with despair,
When a man can silence worry
With an

I
Don't
Care!

Shun the draft that's madly merry,
Misery lurks amid the lees;
Squander not with hand unchary
Moments due to calm and ease.
If by Fortune you are jilted,
Call her wanton—false, though fair;
Cast aside her roses wilted
With an

I
Don't
Care!

The great object in life is to make everything as harmonious as possible, and to do this extremes must be avoided. The family must not be made uncomfortable by the too close attention to trifles, nor must its members be allowed to cultivate the "I don't care" spirit, so that it will be applied to the affairs of moment. She is a happy woman and he is a happy man who can take the middle course, using the tact which disarms to bring about the order that makes life in all its phases comfortable, if not beautiful.

* * *

THE advancement of the cause of woman's suffrage in this country makes it a matter of interest to learn what is being done in other countries. I was reading recently an article about the condition of the women in Finland. It has always been good and favored by the laws as compared to other people, and yet there was a great deal to be done in order to place them in the condition which they should occupy by right. Although there has been much agitation in that country for many years, not until 1884 was there any organized work for woman's rights. Since that time there has been progress in all directions. Women now have the right to vote at municipal elections, and they can be elected to school boards, and as school commissioners. Women study now in the industrial and technical schools, and are admitted to the university, and upon paying the regular fee, enjoy the same advantages as male students in the lecture room and elsewhere. The writer of this article says that although public opinion is in a general way roused upon the subject, and although men talk nobly about progress, the practice is the same as in other countries—a moral code for the man different from that for woman, and liberties given to him that are denied to her. There, as elsewhere, the cause does not progress so rapidly by reason of the indifference of many of the women themselves. Those who support the cause most vigorously at present are the toilers for a living. But in the near future, the better educated classes will become interested and put their shoulders to the wheel, thus moving it along the desired path with greater rapidity.

Since the women of Illinois have had the right to vote upon school questions, there has been a wonderful development of good judgment upon the part of those who have thus been given the opportunity to have a voice in the education of their children. I was reading recently of the condition of things in this respect in Elgin, Ill. It is there acknowledged that they have increased the efficiency of the schools to a great degree. This was done to some extent before they had any right to vote, through the formation of a women's club, which took a much broader field for its work than do most such organizations. It appointed committees to visit the schools, and their work was recognized as being of such moment that a woman was nominated and elected by the men to go upon the school board three years ago. She served so acceptably that two others have been nominated by the women's club since and elected by the men. This year the women will not only nominate, but they will vote.

HINTS FOR HOUSEKEEPERS.

Some Things Very Desirable to Know.

The following are few hints which may prove useful to housekeepers. They are not new, but have been proven to be valuable:

Ordinary ink stains may be removed by washing the article in vinegar and water, and then in soap and water; although the more simple method is to put the stained article through several waters, and then soak it in milk until it disappears. It is impossible to remove ink without considerable rubbing. If the carpet is thus stained, a brush must be used for this purpose. Always try the most simple methods first. Some people employ chemicals at once, but this is a dangerous thing to do with colors.

It is said that a sheet of glass, or a window pane, for example, may be cut like a piece of paper by placing the glass and shears in the hands under the water and keeping them there during the operation. This cutting may be done, because the water deadens the vibrations of the shears and the glass. Great care must be taken not to allow the shears to come out of the water. I do not want to vouch for this, as I nave not tried it; but it is said to be effective.

It is very important that the plumbing in the house should be kept absolutely

sweet, and the housekeeper should spare no pains to impress it upon the family that the closets should be thoroughly flushed, and that all pipes in the kitchen and elsewhere should be treated the same way with hot water. A very good custom is that of once a week putting a half pint of washing soda in a saucepan and adding six quarts of hot water. Keep it over the fire until the soda is all dissolved, then pour the water into the pipes, having an old funnel to use in the bath-tubs and basins, so that the soda may not touch any of the metal except that in the pipes. Remember, that any particles of grease that are lodged in the sink pipes will be dissolved and carried away by the hot water. One thing may be considered certain, and that is, if the thorough flushing twice a day, or oftener, in the closets, with an occasional use of the hot soda, does not keep the pipes sweet, there is something wrong with the plumbing, which should be attended to at once. Odors from drain pipes can be effectually removed by a solution of copperas. Put a pound of the crystals in a quart bottle and fill it up with cold water; use a little of this in the pipes whenever there is any ordor, being careful to keep the bottle corked tightly and labelled "poison."

If you have any rusty flatirons, they may be made clean and as smooth as glass by tying a lump of wax in a rag, and when the irons are hot, rubbing them over with it thoroughly, then scour them afterward with a paper or cloth which has been sprinkled with salt.

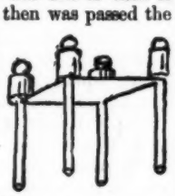
Old-Fashioned Fancy Work.

A revival of the old-fashioned spatter-work that used to be done upon muslin, forming tidies, has come about for decorating the tops of tables or for wood panels in doors or partitions. As may be remembered, fern leaves were taken and arranged in a design according to the taste of the worker. They do the same thing now upon wood. Fastening them down slightly with gum or fine pins or needles, so that they will not move or roll, a hard tooth-brush is taken and dipped in some liquid color. When the surface of the brush is saturated, it is rubbed against another dry one, thus producing a fine spray. The parts that are not covered with the ferns appear dark, and when the leaves are removed, the outlines are left perfectly clear and distinct. The leaves should be finished by painting in some veins, placing them where they are needed. The particular part of this work lies in producing the fine spray, since any drop would spoil the background. A variety is given by removing some of the leaves before the spraying is finished. This gives varying shades. Any other shaped leaves may be used, or any designs representing flowers, or even a landscape or portraits, these designs being cut out of paper and fastened on the wood. Brown is the color that is usually used, although any other can be employed if desired. This, however, gives a soft background that is generally considered most effective. Tables and panels decorated in this way are really very beautiful.

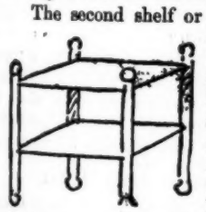
HOME-MADE TABLE.

It Only Needs a Little Ingenuity to Make a Pretty One.

Housekeepers in the country often find themselves lacking in some of the little conveniences and pretty things about the house, which, living in a city where they can be picked up for a trifle, could be easily supplied. A little ingenuity will often take the place of the opportunity and the money. I saw somewhere a beautiful little table described, which anyone with nimble fingers and a little patience could make. Four squares of window glass were obtained at the hardware store during a visit to town. These were cut of the size desired for the stand, say 12 by 18, or square, if anyone wished. Two bamboo fishing rods were also obtained, and four smooth, round sticks. These sticks were of a size to pass through the larger part of the bamboo. Instead of bamboo, any carpenter could make wooden rings just large enough to slip over the stick, and an inch thick. To one end of each of the four sticks was fastened a small castor. Over the sticks then was passed the hollow rings of wood. Upon these were laid two pieces of the glass, which had been previously prepared for this purpose in this way. Fern leaves and flowers, which had been carefully pressed, were laid upon one, and then kept in place by the other glass plate. These two, forming a shelf, were then laid upon the rings of the four legs, and other rings pressed downward upon it to hold it in place.



The second shelf or top was fastened in place in the same way. If necessary to hold the rings, screws may be used, and this will fix them firmly. The legs and rings were then gilded, and the result was a beautiful little table or stand, which would have cost a round sum of money if purchased outright at any fancy store or furnishing establishment. I do not know that I have made this perfectly clear, but if not, any questions regarding it will be gladly answered by the editor. Perhaps the illustration given will be sufficient to explain what is not clear from the written words.



WORK FOR BUSY FINGERS.

Pretty Things for Gifts and to Make Home Attractive.

HANDKERCHIEF CASE.

Cut a piece of fine linen 12 inches square, and fold so the four corners will meet in the center. On the triangles thus made embroider tiny sprays of the trailing arbutus. The blossoms are to be embroidered in pink and the leaves in olive-green floss. Line the square with another piece of linen, and put a ruffle of narrow lace around the edges. Press into shape, and fasten the corners with loops of narrow pink ribbon.

HANGING SACHET.

Take a piece of lavender crepe-tissue six inches long and eight inches wide. Upon this put a layer of wool wadding, sprinkled with sachet powder. This must come within a quarter of inch of the edge of the crepe-tissue. Over the wadding put another of the crepe. The edges of the crepe are then folded in the quarter inch over the wadding. A ruffle of the tissue-crepe, two inches wide, is fulled around the edges and kept in place by means of mucilage. Small bunches of violets with green leaves are tacked into the frililng at intervals, as seen in the illustration. Suspend with satin ribbon.

PEN WIPER.

Cut the two covers of this pen wiper from cardboard. Cover the outside with golden-green velvet and the inside with gold-colored silk. Cover the handle with velvet, and where the two covers are joined tie a bow of gold-colored satin ribbon. Make the fancy stitches on the covers with gold-colored silk. The leaves are made of gold and green felt, scalloped around the edges. Fasten between the covers at the handle.

FANCY FOOT STOOL.

This stool is made of pine and painted with white enamel paint. Decorate the legs and sides with pink and yellow flowers done in oils. Make the cushion of pink and white India silk, or Cretonne if preferred. Tie around one end a gold-colored ribbon in a flat bow.

SATEEN SLUMBER-ROBE.

Get a single width of pale-olive French sateen. Make a border of three or five rows of feather stiching in pale-blue silk. Line with pale-blue sateen with a layer of cotton batting between. Tie inside of the border with blue No. 1 picot-edged ribbon.

CARRIAGE RUG.

Take an ordinary bed blanket of dark blue, or have one dyed the right shade. Bind with dark-blue velveteen. Work an all-over design in sunflowers. This can be used as a lounge cover, if desired.

For the Home Table.

BREAD OMELET.

Take one cupful of soft bread crumbs and pour over them sufficient boiling water to cover; let it stand about five minutes, then pour off all the water that has not been absorbed by the bread. Add one-half cupful of milk, three beaten eggs, a level teaspoonful of salt, and one-fourth teaspoonful of pepper. Put a tablespoonful of butter in a frying-pan on the stove and when hot turn in the omelet. Cook slowly until thoroughly set, then fold together and serve immediately on a hot dish.

COFFEE CAKES.

Beat three eggs very light, and two cupfuls of brown sugar, one cupful of butter, one cupful of sweet milk, and three teaspoonfuls of baking powder. Make a stiff dough by kneading in flour, roll out about one-half inch thick, sprinkle with powdered sugar and cinnamon; roll up like a jelly roll, cut off slices one-half inch thick, dip in granulated sugar and bake.

ORANGE ICING.

One cupful of powdered sugar and the grated rind of an orange mixed thoroughly with it. Then add sufficient orange juice to moisten; spread on the cake and set away to harden.

CREAM SAUCE.

Put one tablespoonful of butter and a level tablespoonful of flour in saucepan and stir until smooth; then add a half pint of cream or rich milk, one half teaspoonful of salt and pepper and stir continually until it boils. Then it is ready for use.

BANBURY PIES.

Take one pound of raisins stoned and chopped fine; juice of six lemons and the grate rind of three; six milk crackers rolled fine; sugar to make very sweet. Make a nice pie-crust, roll thin, cut out the size of a quart pail lid. Put in a tablespoonful of the mixture, turn and pinch the edges together so that the filling cannot run out. Bake in a medium slow oven.

DROP CAKES.

One coffee-cupful of powdered sugar; one small cupful of butter; two eggs; one coffee-cupful of milk; two teaspoonfuls of baking powder stirred in the milk; two and one-third coffee-cupfuls of flour; one tablespoonful of whisky; a nutmeg. Drop a tablespoonful in baking-pan for each cake, and bake in quick oven.

SHEEP AND WOOL.

Shearings.

The corn States are rapidly becoming the sheep-feeding regions of the United States.

The National Live-Stock Reporter reports a demand for Texas stockers and feeders at the National Yards.

Nebraska corn and prairie hay has given a big boom to mutton raising on the western and southern ranges.

V. P. Richmond, Moro, Ill., says: "Sheep husbandry is a life-long study to a true shepherd. He will never learn it all, and never too much."

The demand for sheep in North Dakota has been immense, and shipping sheep from New Mexico to that market has been profitable.

A lamb-raiser of the old Bay State allows the newspapers to report one of his ewes, on an average for seven years, has given a profit of $17 and $18 annually.

The interest in sheep-raising is hindered in northern Iowa by the ravages of wolves. They are believed to be on the increase. The bounty on wolf scalps has been increased to $5, and hundreds of wolves are being killed. This already shows an increased attention and increase of flocks.

A favorite mark for sheep in many parts of Australia is known as "the nose mark," and is made by snipping a piece out of each nostril. The Government Veterinarian of New South Wales recommends the prohibition of the mark, and gives reasons aside from the cruelty of the thing.

The New Mexico wool-growers have organized for mutual advantage and unity of interest in sheep-raising. They are determined to secure the enactment of a thoroughly effective scab law in the Legislature that meets next Winter. This is very timely, and shows the spirit of enterprise of the wool-growers of that favored region.

A marked change in breeding Merino sheep has set in during the last few years. Here is one of the many experiences that are repeatedly written us: "We have been breeding considerable French blood for the last five years. We find the cross makes a large, hardy sheep." Such sheep are in demand on farms and on ranges.

A rough Peruvian cotton, with a strong, rough, wooly, crinkly staple about one and a half inches long, is being imported by woolen manufacturers for the purpose of mixing it with wool. Last year, as is estimated, 12,500 bales, weighing 180 pounds each, were imported, and it should be subjected to a heavy duty.

The *Canterbury Times* says: "The production of cross-bred wool is being greatly extended by many of the stations in New Zealand which have until lately had exclusively Merino flocks. * * * The large flocks show better quality, and the small farmers are at last taking some trouble to pack their wool properly."

The Australian suggests the reduction of breeding ewes in New South Wales, on the ground that at the present time the country is very fully stocked for a good season, and should a dry time come on the Colony will be greatly overstocked. There is no outlet, and it will not be possible to fatten, as the Colony will be full of sheep, and the losses will be something unprecedented.

The sheep industry throughout the United States, and especially of ranges of the West and South, has not been so promising for many years. The general interest was never so uniformly noticeable as now. A period of unexampled prosperity is confidently expected. A feeling of stability has, under the McKinley law, done all this. They only ask to be let alone.

Marking sheep may be readily and permanently done for a year, while the fleece grows, by taking a pinch of Venetian red in the fingers and pulling through the wool. The Prussian blue and common lampblack may be used to vary or designate different grades or classes. The use of oil or turpentine is to be avoided, as it cannot be removed from the wool and is a waste.

Choosing a sheep is a little like choosing a wife. Be sure to get the kind you like, and that will like the care and environments you can supply. Don't handicap your chances of success by taking what can be easily gotten. It is the highbred, strong, vigorous, thrifty sheep that pays for the highest culture, and all the trouble you give it. Choose the kind that can adapt itself to your circumstances. Don't take one above your farm and management; rather get one a little below and improve it up to your place. Such improvement is possible, and always reliable.

Tanning Sheep Skins.

In a former number of THE AMERICAN FARMER some suggestions on caring for and uses of sheep skins were offered. The following directions will be found reliable for tanning a sheep's skin with the wool on: For mats, take two long-wooled skins and make a strong suds, using hot water; when it is cold wash the skins in it, carefully squeezing them between the hands to get the dirt out of the wool, then wash the soap out with cold, clear water. Then dissolve alum, and salt each a half pound, with a little hot water sufficient to cover the skins, and let them soak in it over night for 12 hours; then hang over a pail to drain. When they are well drained spread or stretch carefully over a board to dry. When a little damp, have one ounce of saltpeter and alum, pulverized and sprinkle on the flesh side of each skin, rubbing in well; then lay the flesh sides together and hang in the shade two or three days, turning the under skin uppermost every day until perfectly dry; then scrape the flesh side with a blunt knife to remove any remaining scraps of flesh; trim off projecting points; rub the flesh side with the hands, and they will be very white and handsome, suitable for a door or carriage mat. They also make good mittens.

Lamb skins or even sheep skins, if the wool be trimmed off evenly to a half or three-fourths of an inch, make beautiful and warm mittens for ladies or gentlemen, and the girls with a little practice can make them.

Practical Hints to Wool-Growers.

EDITOR AMERICAN FARMER: 1. Sheep should have wool clear of burs and other weed-seed. The cockleburs, burdock, nettles, beggar-lice, horehound seed are the worst. These should be carefully cut on all sheep walks before the seeds are ripe and exterminated Especially should they be cut in cornfields, where they mostly multiply. This work pays not only in the clean wool, but in the general economy of the farm.

2. Sheep should be kept in regular good flesh, as alternations of condition makes the wool fiber weak in places, and thus destroys much of its value.

3. In shearing, the wool should be evenly clipped, and by no means cut twice, by careless work.

4. Wool should not be washed at all on the sheep's back, as it is dangerous to man and beast, and no advantage comes of it, as the manufacturers wash over again.

5. When the fleece is sheared, being carefully kept whole, it should be spread on a large board or floor, and the soiled wool or "tags" pulled off, washed, and put into separate bags. The manufacturers do not fail to pay for the tags, when washed carefully and dried, the same price as they do for the fleeces. It is just to both, and gives a more ready sale to the fleeces.

6. When the fleece is taken off it should be spread out and folded in convenient breadth—the outside now inside—into an even roll, and firmly tied with twine in one or two places, so as to preserve the fleece unbroken, and so the manufacturer's sorter may again spread it out as it grew on the sheep. This will facilitate the division of the fleece into the several grades of fineness. The fleece of the same sheep has several different grades or qualities, viz, on the neck, shoulder, sides, belly, and hips.

7. Care should be taken to keep the wool dry. Never shear after a rain until the sun and atmosphere dries it thoroughly. After shearing, the wool should be packed in dry garrets, or elsewhere than in cellars, where dampness, if left a long time, might injure its strength.

8. The finer the wool the greater is its general value, as it is stronger, warmer, and softer than coarse wool. Hence, every sheep-breeder should, other things being equal, aim to improve the texture as well as the weight of his fleeces. Sheep well kept of course produce more wool than sheep in poor condition.

9. Among American breeds, the Saxony, a species of the Merino, is, I think, the finest; then the American Merino; then the Southdown; then the mixed breed of Southdown crosses, as the Shropshire, Oxford, and the crosses of the Southdown upon the scrubs and long-wools.

10. By judicious breeding, the wool can be greatly increased upon any breed of sheep. The faces, flanks, bellies, and even the legs to the hoofs may be covered with wool. Thus the weight of wool is increased. In the Southdown it has been about doubled in the last 30 years, and the same has, no doubt, been accomplished in other breeds. The hair on the legs of sheep was intended by nature to withstand the briars and shrubs; in domesticated life it is not needed in clean pastures, hence the wool may cover the whole surface, and nature accommodates itself to surroundings.—C. MARCELLUS CLAY.

Merinos in Northwest Missouri.

Mr. G. B. Bothwell, the largest breeder of registered Merino sheep in the United States, writes: "I wish you could see our 2,000 ewes that are to lamb next Spring. All have large, square frames, weigh about 100 to 120 pounds, shear from 10 to 17 pounds. They are in lots of 150 to 175 head, in pastures of 40 acres; a good shed or barn in each lot. All of our sheep have good, dry sheds. We feed shock corn, scattered on the ground, once a day, and calculate to feed one and a fourth bushels of corn per 100 head. We feed all the hay they can eat in mangers and mostly out of doors. Our Winters are mild here. The sheep get some grass most all Winter. Our lambs come strong and get plenty of milk. We find sheep that are raised in this way for generations become very hardy, and if carefully bred are great wool-bearers and make good sized and excellent mutton. I have seen California and 25 different States and Territories, and conclude this northwest Missouri is the best sheep country I know of.

We shear most of our ewes in April, just before lambing. It is done with safety, and the ewes and lambs both do much better for it. A man can take care of 300 ewes in lambing time when they are shorn as easy as he will 100 with the wool on. The ewes, too, give more milk after being shorn. Of course, you must have good sheds and plenty of feed to make a success in this way."

Sheep Houses.

Greater attention to housing sheep in this country has led to economies hardly thought of by our fathers. Here is a bit of experience in this line that may help somebody. In the last few years we have made a great improvement in our manner of housing sheep. We now have warm, comfortable sheds, covered mostly with plank. We find what is called ship-lap makes an excellent covering; but it must be thoroughly seasoned before it goes on. We make these sheds portable, so we can move them about once a year from one part of the field to another. By this means we fertilize the farm very rapidly. We find there is a great waste of manure when sheds are kept too long in one place. Let me describe these sheds fully: We build them in sections of 16 feet square. We put temporary braces in these sections to keep them from rocking, and move them with teams from one part of the field to another, a section at a time. This farm that we are living on will support a third more sheep now than it would 12 years ago. Our best pastures will carry 10 sheep per acre all Summer.

Ensilage in South Africa.

The *South African Agriculturist* has a word for ensilage: "Where wool is clipped twice a year, feeding the stock on ensilage during the Winter months will assuredly lessen the difference in quality, so distinctly observably in this Colony, between those grown during Winter and those during the Summer months, a pure and distinct monetary gain to sheep-raisers."

Sheep Ranches in Illinois.

At the time of the war the prairies of Illinois were not fenced up as they were two or three years after peace was declared. Hundreds of thousands of acres of as good as there were in that fertile State laid out of doors unowned or unoccupied. The raising of sheep had been practiced by the first settlers, but in no considerable numbers or with any respectable system. The war gave a wonderful impetus to wool-growing, and Illinois offered every facility that could be desired for the business—vast pasturage free of cost were available. Flocks seemed to spring out of the ground as if by magic. Sheep ranches were established, and nothing was so popular or so profitable. Sangamon County, one of the finest sections in the State, was full of sheep. One family connection owned 30,000. There was more wool sheared in that County in one year than had ever been produced by one County in the United States. There was an impression that the business would be perpetuated there for years, perhaps forever. Some confident sheep masters secured large bodies of land, and thought they were well established for life. Many of these were shepherd kings, and lived luxuriantly, quite like the patriarchs, save in the migratory feature. Iowa and northern Missouri had large interests in flocks. It is quite amusing to read as well as recollect the faith that generally existed in the permanency of the wool industry, and the reasons of the hope within them. The war of the rebellion was destined, they thought, to overturn slavery, and with that institution of cheap labor the cotton industry of the South would be a thing of the past. Without cotton, then called "king," wool would be the available and permanent supply for clothing for all time. With these promises established beyond a question, the conclusions were logical. But scarcely was the war over before the fallacy of human reasonings began to be apparent. Wool went down in price; the clothing market was flooded by foreign supplies; domestic manufacturers were discouraged, and for a time the wool and woolen industry was ruinously depressed. Some flock owners were prompt in disposing of their flocks; others were more hopeful, and tried to tide over the general wreck and ruin until everything was lost. Lands that had been used for sheep were devoted to grain raising. The prairies were fenced as rapidly as possible, and homes were established with marvelous rapidity. The sheep went—some to the cheaper West, some to the dogs and dunghill. New lessons were learned, at least experiences, that have not been forgotten by the men who were active in the events of the '60's. Nobody cared to talk about the cruel disappointment, and losses that came to their energies and fortunes. The bewilderment prevented proper business reasonings and appreciation of causes of all this evolution. The same experience came to those who tried the business of wool-growing in Missouri, Kansas, and Nebraska. The same finally came to the rancheros of California, and to Texas, to an extent not so well defined as yet. It was the adjustment of the sheep industry to new conditions not then systematized and formulated into mutual relationships that led to all these changes. Illinois, happily, has found new perception and value in a sheep husbandry more profitable, but impossible 25 years ago.

A Wool Retrospect.

The advanced sheet of the Report of the Statistician, United States Department of Agriculture, for May shows a very comprehensive presentation of the statistics of sheep and wool; gives the estimated number of sheep and product of wool for each of 22 years past; the average wool supply by decades since 1840; the annual importation of wool since 1870, and the average annual importation of woolens by decades since 1830. It shows that the value of our flocks is greater by $42,000,000 than in 1870, and the value per head greater than since 1875.

From these facts it appears that the domestic supply of wool is six times as great as in 1840, and that both domestic and foreign supplies were only three pounds to each inhabitant, while they are now six and a half pounds. Then, including imports of woolens, scarcely four pounds per head were used, whereas we now require over eight pounds.

It appears that three-fifths of all the wool used for all purposes is of domestic production, while four-fifths of the requirement is manufactured in this country, leaving only one-fifth to come in the shape of imported goods. It is gratifying to know, also, that for three decades the value per head of imports of woolens has been regularly declining, and is now only about three-fourths of a dollar per annum for each individual, when in 1850–1860 it was considerably more than a dollar.

Sheep Shearing Machine.

Many a sheep-shearer, with the backache, will wish somebody had sense enough to invent a way to shear sheep by machinery. In this age of the world, if there is anything needed, there is somebody with brains enough to make it, especially if there is money in it. It is as possible to shear sheep with a machine as to cut and bind wheat with a self-binder. The wonder is that some Yankee boy has not caught on and made a shearing machine and a fortune. Two such inventions are reported from Australia that do good work. A Texas man had a shearing machine on the brain a few years ago, but it is not on the market for some reason. The possibility, the demand, and money in it, gives us hope that some inventive Yankee genius will soon give the sheep men a practical and cheap shearing machine, that shall supersede the sheepshears as the self-binder has superseded the sickle and the grain-cradle. He would be a benefactor of his race.

Report of Rambouillet Shearing.

Mr. Thomas Wyckoff writes: "My imported French ewes sheared an average of 17 pounds, 8 ounces of wool and 165 weight of carcass. The flock average of wool was 13 pounds, 9 ounces."

Feeding Sheep in Illinois.

The low price of corn, and the high price of mutton, has given an impetus to feeding of sheep as a special industry with enterprising farmers.

An Unsettled Question.

The opinion has been held and the experience of some is that the increase of nutriment so favorable and important to profitable mutton husbandry has tended to the coarseness of the fleece. Some observations in Merino sheep have strengthened this conclusion somewhat. That Merinos taken from Vermont to the rich prairie soils of Illinois have taken on new characteristics and departed from Vermont standards is true. The sheep increased in size if taken there even after they had arrived at maturity. The fleeces were changed not alone in weight, but in the more subtle qualities not appreciable to the less expert in wool matters. Often these differences were visible to the novice. Was it due to increased quantity and its character of feeds? The value per pound was not what it had been. Was it bad breeding?

Peck's Sheep-Shearing Festival.

Mention was made in a former issue of THE AMERICAN FARMER of the annual sheep shearing to occur April 6, 1892, on the farm of E. Peck & Sons, near Geneva, Ill. For many years much interest has been shown in the reports of this festival, as it is regarded as typical and indicative of the very front in shearing matters.

The following report, furnished by the President of the Illinois Merino Association, will be of interest to our readers:

Owner, E. Peck & Sons.	Age.	No. of Sheep.	Days Growth.	Weight of Fleece.
483	7	100 ewes.	361	20
727	5	105 "	361	18½
760	2	103 "	361	15½
706	.....	91 "	361	14
819	.....	97 "	361	15
705	.....	100 "	361	15½
602	.....	107 "	361	16
2377	.....	98 "	361	16
732	.....	99 "	361	16
2580	.....	70 "	330	13½
384	6	178 rams.	361	37½
980	3	159 "	361	36½
804	3	150 "	361	31½
2009	4	141 "	361	30½
875	2	140 "	361	21½
809	3	129 "	361	21½
2402	3	135 "	361	27½
756	4	144 "	361	31½
944	4	127 "	361	30½
978	2	145 "	361	28
959	2	130 "	361	23
966	2	137 "	361	27
873	2	134 "	361	28½

Cooper's Sheep Dip for Paper-Skin.

An Illinois Oxford breeder gives Cooper's sheep dip, diluted with water sufficiently not to kill the sheep, to his lambs when *strongulus falaria*, which causes what is known as "paper-skin," is assured. Somebody else mixes this dip with the salt he gives his sheep as a preventative. Some caution is suggested, but no one who has studied the subject can doubt the safety or propriety of the dose.

Tobacco for "paper-skin" is used by a successful Virginia sheep-raiser. He pulverizes it and feeds it with salt also. Those who have tried it recommend its use. Tobacco for sheep is not new, but as an insecticide is new.

Compulsory Scab Law.

The *Wynberg Times*, Cape Colony, is authority that a compulsory scab law was once opposed by the sheep men of that country. They are reported to regard the importance of such a law with more favor now than heretofore, since it is found the prices of fleeces are deteriorated by the scab.

Sheep in Ireland 75 Years Ago.

Youatt gives us some queer practices of handling sheep in Ireland three quarters of a century ago: "The butcher in almost every town of Dublin County buys his sheep singly or in pairs from the little farmers, and the farmers purchase them in the same way, when lambs, at some of the Summer fairs, and keep them as long as they find it profitable or convenient. There are a vast number of little farmers in this County, and the traveler can proceed a very little way without perceiving a sheep tethered in the corner of a field or the side of a ditch. Their way of tethering was rather curious; two stakes were driven into the ground, with a rope extended from one to the other, and this rope passed through a ring attached to a short chain around the animal's neck."

The New Zealand Frozen-Meat Trade.

To meet the necessities for larger shiping facilities of New Zealand frozen-meat trade, several large steamers of 6,000 tons capacity each have been built in addition to the mail boats belonging to the same line. Two of these ships recently discharged at the Royal Albert Dock, London, England, 65,000 and 58,000 frozen carcasses, respectively, besides general cargoes of butter, cheese, and wool. Several other vessels of about the same size discharged from 20,000 to 30,000 carcasses each.

Scab, Ticks, Lice, and Bad Skin.

Do not pursuade yourself that you have done enough for the sheep this Spring until the whole flock, lambs and all, have been dipped in some proper decoction that will insure a clean, healthy condition of the skin. The next fleece will show the good effects. The 3, 4, or 5 cents a head that the dipping may cost, depending on what is used and the economy of the operation, will be repaid many times in the comfort, thrift, and the increased growth and quality of the fleece. Nothing is better than tobacco and sulphur.

Convention of Wool Growers.

A wool convention has been called by Gov. Prince, of New Mexico, for July 5, 6, and 7, at Albuquerque, N. M., and it is expected that delegates from all of the Southern States and Territories will be present. Great interest is being manifested in this convention, and it is likely that the meeting will be a large and successful one. The wool industry is assuming large proportions in this section of the country, especially in Utah, New Mexico, Colorado, and Wyoming.

To Managers of Sheep Shearings.

If those who manage sheep-shearing festivals would inaugurate systems of doing up wool properly it might be a real benefit to wool-growers. The great need of practical information and reforms on this subject should suggest illustrations on skirting fleeces and the fairest management of wools. In this latitude shearing comes only once a year and is hurriedly done. Besides, nobody practices these methods nor is the thing duly regarded. Let this be a feature of public shearings and it will be useful to others.

THE APIARY.

Hummings.

A bee's wings are said to beat the air at the rate of 190 strokes per second, and to propel the bee a distance of 30 miles in an hour.

Until quite recently the extensive bee-keepers in southern California sent to Ohio for their queen bees instead of raising them in their own apiaries.

One great peculiarity of the Guadaloupe bees is that instead of storing their honey in combs they store it in bladders of wax about as large as a pigeon's egg.

When colonies are started in the Spring care should be taken to put the hives behind some fence or hedge, that they may be shielded from the chilling northerly winds.

The Malta bees are noted for the purity and delicious flavor of their honey. They extract most of it from sulla, or clover, of which there is an extensive crop.

It pays to keep red raspberries both for their fruit and for the nectar they afford the bees. The honey is protected from moisture by the drooping blossoms.

In the majority of bee-cellars ventilation of some kind is necessary. Many persons ventilate through the doors and windows, and obtain as good results as though regular ventilators were used.

An excellent paint for hives is made by mixing raw linseed oil with equal parts of zinc, white lead, and French ocher. The combining of these forms a smooth, durable surface that will not peel or rub off. The color is nearly white.

Bees are valuable not only for their products, but because they also serve as active agents in the fertilization of plants. One reason why they are profitable is because they gather and store up that which would be entirely lost without their aid. They work in places that are rarely seen, and the fence corners and the neglected spots are often their most valuable pastures.—*Wisconsin Agriculturist.*

A CHAPTER ON BEEHIVES.

The Different Varieties and How Best to Make Them.

EDITOR AMERICAN FARMER: When Father Langstroth invented his famous hive, beekeeping was a very uncertain pursuit, indeed, and the straw hive, or "skep," the log gum, and the box hive, with the cruel brimstone method of obtaining surplus honey, held full sway. The great mass of beekeepers (the bee-masters, like angels' visits, were few and far between) believed that each colony was ruled by a king, and that it was bad luck to sell bees. They also believed that if a member of the family died someone must tell the bees of the sad occurrence, and a string of nonsense and superstition that were it all collected and printed would fill a volume. Thousands of colonies perished every year throughout the land from starvation and the ravages of the moth that care and a movable comb-hive would have saved.

The Langstroth hive and the new system of management was destined to create a vast change in apiculture. Many people at once saw that there was money in the production of honey by the new methods of the keen-eyed and intelligent clergyman, who, on account of ill health, had taken up the study of the habits of the little bee, with its open air accompaniments and the movable frame, and "Langstroth on the Hive and Honey-Bee" were hardly before the public before numerous so-called improvements on the hive sprang up.

The most of them were covered by letters patent, and very many of them were infringements on good old Father Langstroth's legally-protected rights. There was a vast difference in these "improvements," and many of them being invented in the workshop or the fertile brain of some money-loving genius whose ignorance of the habits of the industrious little creatures that he proposed to fit out with an improved home was only equaled by his impudent claims of superiority over the invention that is to-day in use in hundreds of apiaries, while his own was long since forgotten.

For many years the Langstroth shallow frame, the Quinby standing and suspended Quinby frame and a few others have stood the test of use in some of the largest and best apiaries in the United States. Capt. Hetherington, of Cherry Valley, N. Y., uses the Quinby hive, and is the owner of some 3,000 colonies of bees divided among 21 different apiaries. P. H. Ellwood, of Starkville, N. Y., keeps several hundred colonies, and uses the Quinby frame. Chas. Dadant & Son, of Hamilton, Ill., keep five apiaries of from 60 to 120 colonies each, and they also use the Quinby frame.

Many other beekeepers could be named who use frames differing in size and shape from the old Langstroth frame, and make a nearly uniform success of the bee business; and it is the opinion of the writer, based on an experience of nearly a quarter of a century, that friend Gallup was not far from right when he said that bees would store as much honey in a nail keg as anywhere else, and that, moreover, they would store as much in one man's nail keg as in another's. Of course, Mr. Gallup did not advise the fraternity to abandon the more costly frame hive for the nail keg, but wished to carry the idea by this illustration that the shape of the frame was not so very essential to success as many believed.

Mr. Gallup's frame is 11¼ x 11¼, and is used by Prof. Cook, of Michigan, and G. M. Doolittle, of Borodino, N. Y., both well known as practical apiarists and experts in apiculture. Mr. Doolittle is a very successful honey producer, and as a writer is equaled by few and surpassed by none.

Edwin France, of Plattville, Wis., proprietor of several apiaries makes use of a very deep frame, the dimensions of which we forget, but believe to be somewhere between 15 and 21 inches in depth.

Mr. France, in the year 1886, took from 395 colonies 42,489 pounds of honey, and increased his bees to 507 colonies. In the year 1885 his apiary averaged 113 pounds of honey per colony.

Mr. France and the Dadants make a specialty of the production of extracted honey, and market it by the carload. A. E. Manum, of Bristol, Vt., keeps about 700 colonies, and uses a frame about 12¾ x 10 inches, exclusively. In 1885 his production was 44,000 pounds of comb honey, made entirely from basswood.

The above list might be increased, but it is enough to serve the purpose of this article, namely, to show that the shape of the frame has but little to do with the results sought for. The statistics given above can be relied on as being correct in every particular, and were mostly compiled from the "A. B. C., of Bee-Culture," one of the standard works on the honey bee.

THE HIVE FOR THE MAJORITY.

The above-mentioned parties are specialists, however, and many of them, like the writer, make their own hives; but the great body of the bee brotherhood look to the hive factory for their hives; therefore uniformity of frame at least is imperatively necessary, and as the standard Langstroth frame is made or carried in stock by every supply house in the land, it is the most available of any to the general beekeeper.

But there are many styles of hives containing the "L" frame that are hardly up to the times in matters of convenience.

Now, beginning at the bottom of our hive, as the builder would at the bottom of his house, we want a loose-bottom board. I imagine I hear someone very emphatically remark that "he not only wants a bottom board spiked very securely to his hives, but will not have them any other way." All right, my friend, stick to your tight-bottom board, but listen to a few of the advantages of a loose one, and please do not lose sight of the fact that if you don't want them loose a pair of simple hooks or a few nails will fasten them on at any time. The writer used tight-bottom boards for years, and did not abandon them until satisfied that the few advantages they possessed were more than counterbalanced by the conveniences of a properly-constructed loose bottom.

The one used in our apiaries (and similar ones can be purchased of nearly any supply dealer) is made of clear, well-seasoned white pine, the grain running lengthwise of the hive, securely cleated at each end to prevent warping and to keep the hive up enough from the ground to let the air circulate under it.

In case of being placed too low, a "bee space" should be made on the upper side by nailing strips three-eighths by seven-eighths around the sides and across one end, the other end forming the entrance. The body of the hive should be so constructed as to leave a bee space on top of the frames, but none below, as we already have that on the bottom board. Of course, all the joints should be square, so that a knife, chisel, or whatever tool is used to pry the hives open, can be inserted between the various parts.

Now we want a cover made of one board, the width of the hive, and a little longer, securely cleated, but not bee spaced, and with the usual complement of eight or 10 brood frames, according to the size of your hive. In case you wish to produce extracted honey, these bodies can be piled up two or three high, and are perfectly interchangeable. This is a great advantage in a large apiary, and a still better way is to make frames and bodies about one-half the depth of the brood-chamber, and use these for extracting. We can put two of these shallow frames in our extractor in the comb pocket or basket made for one brood frame.

These shallow frames are very convenient for parties who wish honey in the comb for use on their own tables, and by nailing a piece in the center of each frame perpendicularly, a nice comb can be cut out without the drip and waste usual in cutting large combs, and one preferred by many to sections for home use.

If section honey is the object in view, there is room on the top of a Langstroth hive for four rows of sections in the "T" tin case, Sleddon case, Root section-holder, wide frame, or any other device for that purpose. The cases should always be made of seven-eighths thick lumber, and the dimensions should correspond in length and width to those of the hive, thus dispensing with several feet of worse than useless lumber in the old-fashioned cumbersome cap that only took one case of sections and required an extra rim to tier up with.

These old-fashioned caps are a hindrance to rapid manipulation of hives, heavy to handle, and in an apiary of 100 or more colonies the extra lumber used in their construction would make a number of hives.

But we have nearly forgotten our friend who disliked the loose-bottom board, and would persist in having his bottoms tight. A few of the advantages of a loose bottom are as follows:

First. With it we can elevate the body of the hive on a two or three-inch rim for Wintering, and as the editor of the *Beekeeper's Review* very truthfully says, "Bees will Winter better from some cause where these rims are used." We believe we understand the cause of this, but will not prolong this article by a detailed explanation. We will say, however, that we use a three-inch rim under all our hives in Winter, and would not dispense with it for 10 times its cost in the convenience of Spring cleaning of hives. It dispenses with the good old-fashioned way of lifting the combs and bees into an empty hive, or leave them to clean out alone and unaided, and also does away to a great extent with mold.

Second. We can feed under the hive in Spring or Fall. Bees will take more feed from the bottom of a hive than from the top in a given length of time.

Third. When a beekeeper is confronted by a failure of the honey crop, and has a large number of extracting combs for the moth to feed upon, he is able to place a set of combs under each vigorous colony, and leave them to the care of the bees, well-knowing that they will be better cared for than in any other way.

There are a variety of other uses for a loose-bottom board that will develop themselves, not the least among which is the fact that a puff of smoke in the entrance and a tipping up of the hive will show the strength of the colony, etc.—J. A. NASH, Monroe, Iowa.

TRANSFERRING EMPTY COMBS.

A General Chat on Apiary Matters.

EDITOR AMERICAN FARMER: It is desirable to have all colonies in hives containing frames of a uniform size, so as to be perfectly interchangeable. Too much stress can hardly be laid on this point. We do not mean by this that two different patterns of frame cannot be used in one apiary, but refer more particularly to variations in a given pattern.

There are few things more troublesome in the business than trying to exchange frames that vary one-fourth inch in length, or one-half inch in depth, or that you can insert in the hive and then find that the top bar is a little too long, etc. Such little things as these fill the heart with wrath and the face with stings, while the unlucky party who made or sold the hive to the exasperated bee man comes in for a full share of the blame.

If the apiarist has two different patterns of hive in his yard, well made, and a large number of each to which he has no other objection than the difference in size, it might not be advisable to throw aside one pattern for the sake of uniformity, as the profits in bee-culture are not large enough to warrant any unnecessary expense. The better way in such a case would likely be to reduce the least preferable pattern by sale or gradually working out of them. We have used deep and shallow frames in the same apiary with but little inconvenience, by keeping each kind in a row by itself. But deliver us from a hive that is a little too shallow, or frames of which no two are the same depth. Life is altogether too short to be spent trifling with any such fixtures as these.

All frames should be nailed on a pattern or form that will hold each piece in its proper place true and square, and so constructed that in case the material is improperly cut it cannot be nailed until the fault is remedied. The Langstroth is a standard frame, but if we had as many five-dollar bills as there are trifling deviations from the original frame given by Father Langstroth, our exchequer would be nearer full than two consecutive seasons of a complete failure of the honey crop has left it.

Our advice would be to remove the comb from every frame that varied from the standard and fit it, if it was a good worker comb, into a frame of the proper size. This can often be done by cutting the comb loose at the ends and bottom of the frame and with a fine, keen saw, cutting the top bar of the old frame, so it will fit tightly into the new one; a small wire nail should be driven through the end bars or uprights into the top bar, leaving the comb suspended as if built where it belonged in the first place. It will be fastened to the balance of the frame by the busy little toilers of the hive; or the comb, if not filled with honey, can be carefully fitted into the new frame and tied with wrapping twine.

An excellent method of transferring from odd-size frames or box hives, where we have an extractor, is to fit up a hive containing empty combs (if we have them). If not, use frames filled with foundation starters or guides. Remove the cover, and in its place lay a board little larger each way than the old or new hive. Place the old hive on this with passageways cut through to connect the old with the new; close the entrance of the upper hive and compel the colony to work through the new hive. Do this early in the season, and in the Fall the bees will usually be found to have transferred themselves below, bag and baggage. The combs can then be removed from the upper hive, the honey extracted and the combs, if good, and any straight worker comb is good, can be tied into brood frames and put away for the next season.

In this day of comb foundation some of us are apt to forget the value of empty combs; but no matter if they are moldy, filled with dead bees, or black with age, if straight they are valuable, and placed one at a time in the center of some strong colony, they will be cleaned up equal to new in a few hours. We have in use in our apiaries combs that are very old, black and heavy, that we would not exchange for new. They will bear transportation to and from apiaries, or on the cars, better than new ones, and are warmer and better brood combs.

On page 745 of the *American Bee Journal* for 1889 can be found an interesting account of a colony of bees that at that date were occupying the same hive in which the writer had hived them when a boy 50 years before. The owner states that he could see no difference in the size of the bees as compared with those of other colonies in his apiary. This old colony had stored from 20 to 40 pounds of surplus honey every year since 1840, and is or was at that time the property of Mr. G. W. Rosenberger, of New Market, Va. We purchased a colony that had occupied a black walnut box hive until that durable lumber was so decayed that the box had been bound together with old ropes and chains. The bees had been in this old box for nearly 20 years. They worked out here, there, and everywhere at their own sweet will, and were a living example of the fact that bees can struggle along through the Winter with lots of air if there is only a strong colony of them. These bees were of an average size, and had never had any combs broken out (this was also the case with the colony of Mr. R., mentioned above). We transferred enough of this comb to fill four or five frames, and used it until the apiary was destroyed by fire several years after.

The theory regarding comb used for rearing bees is that the cells become smaller by continued use, the cocoons of the young bees adhering to the walls of the cells and reducing the diameter of the same. As a matter of fact, the combs do become heavier and the cells smaller as the comb becomes older, but we have never been convinced that the bees were any smaller.

We once had a beekeeping friend who made it a rule to render all his old black combs and sell the wax, and it was time thrown away trying to convince this man that any other course would result in anything but a lot of—as he expressed it—"runty bees." We pursuaded him as an experiment to take a colony of very fine, large-bodied Italians and run them onto a lot of about as hard-looking combs as we ever saw, and leave them there a year. This convinced him, and we failed to get as much wax from his apiary as we had in the years preceding his experiment.

Theory is all right as long as it agrees with practice, but when it fails to do this it is of no value. There is a certain difference in the size of bees, but this is no more due to the size of the comb cells than the difference in size of brahma and bantam fowls can be attributed to the difference in the eggs. Whenever we find a queen producing small, slender bees, we step on her and introduce another in her place. It will be profitable to rear queens from colonies that are found to be better honey gatherers than the average. There is, as every close observer has often noticed, a vast difference in the amount of honey gathered by some few colonies here and there in the apiary that were no stronger and perhaps not as strong as many that stored little or no surplus. How often we hear the remark: "If my bees had all stored as much honey as this one and that one, my apiary would have been a paying investment." Now, if it is policy to breed from our best milk and butter-producing cows and our finest mares, why not from our best queens.

We do not pretend to be writing anything new. It is hard to write or say anything entirely new in regard to bee culture. There are many intelligent, painstaking queen-breeders in the country that have bred queens for honey-gathering qualities for years.

But, for a variety of reasons, we cannot get all our queens from the breeders; so to that large number who depend mostly on the home-reared bees for queens, we would say:

Do not breed from a queen unless her progeny gathers more honey than the average of the yard; nor from one whose children seem possessed of an evil spirit, and swarm on you like yellow-jackets every time you take off the cover of the hive, or perhaps go on a stampede over the interior of the hive, and out at the entrance every time. You want to find the queen. When you do find her, step on her, and do not let another be reared from her brood. We are not praising the native bee at all, but will say that we have had colonies of blacks that were far superior to many colonies for honey-gathering qualities, that showed the three yellow bands of the Italians.

Now, a few words in regard to different races of bees. The writer has had some little experience with some of the imported varieties, but not an extended one with any but the Italians. These, from the time when we paid $20 for our first queen, we have bred in their purity (and sometimes in their impurity), and we but voice the sentiment of our best-informed and most-progressive bee culturists when we say that in this country, at least, they have never been surpassed, and in our own experience never equaled.

The first row of hives in our home apiary sits so near the house that there is barely room to pass between them and the building, and at the hight of the honey harvest they fairly pour over and around the house. The air for several rods around is full of them, yet it is seldom, indeed, that a child is stung, although they play within a few yards of the hives. This may look like a pretty strong recommendation of Italian bees, but is only the simple truth. We have no ax to grind. Our business is the production of honey, and not the sale of queens.

Years ago we purchased an Egyptian queen at the time they were so highly extolled in this country. The party who sold us the imperial descendant of the Pharaohs, told us that this race of bees had very marked characteristics, and every son of Adam who undertook to handle the wiry little strangers agreed with him at the first trial. It was said of these bees that they were the superiors of the Italians in every respect, but, as a matter of fact, we found them worse than worthless, if such a thing could be.

In opening a hive of the Italians it is seldom, indeed, that we are troubled with the "boiling over" tendency of our native bees. They (the Italians) hang quietly on the combs as a rule. But these little wanderers from the banks of the Nile, where will we find language strong enough to describe and do justice to the savage ferocity with which they swarmed out of the hive and off of their brood combs and located themselves in the hair and beard and under the clothing of the hapless bee man? They were not extra honey-gatherers with us, and the hornet-like ferocity of temper alone would have excluded them from any apiary in the land.

The Holy Land bees, the Albinos (a freak or sport of the Italian), and the Carniolan have all had their day. Their praises have been sung long and loud, but the Italian and the Italian hybrid are still the leading bees of our country. We are not prejudiced in favor of the Italian bee; if there is a better bee than the old standard we want it, and want it just as badly as anyone else does, but before we supersede our yellow-banded workers with those of some other race we must be convinced that there is money in it, and not only money to the breeder of the new variety, but also a little to the purchaser.

In a future article we will have a few words to say about the Punic bees.—J. A. NASH, Monroe, Iowa.

The Buds Must Be Nipped.

EDITOR AMERICAN FARMER: Mrs. Lunn says (and she is positive in her sayings) that the women, with their active brains, will go into politics. Having made a step or two in that direction in Wyoming, it may be well to keep an eye on their movements. While not intending to depreciate their quick perception of things in general, it may be rough on the men if they ever get full control. On the farm there has been many a woman who would stand up to a man and tell him how to do his work, and all the talking he could do could not convince her that she did not know how farm work should be done. Men must maintain their supremacy—right or wrong. Judging from the signs of the times, the buds (fascinating as they are) had better be nipped, for when full blown they are bound to have their own way, and the very last say.—JOHN E. CAKE.

The vintage of Spain last year gave a total yield of 540,000,000 gallons.

THE ORCHARD.

Cullings.

It is estimated that 500,000,000 feet of logs are cut annually in the State of Maine.

Japan is said to have apple trees only four inches in hight, which produce fruit about the size of currants.

In a kingdom of Africa, Ashantee by name, a tree resembling the English oak grows which bears excellent butter.

France has an organization known as the "Society of the Friends of Trees," the object of which is to restore the abandoned forests.

From the birch trees of Russia there are made annually about 30,000 spoons. These are made by hand by the families of the peasants.

Victoria, Australia, is said to have the two tallest trees in the world. They are of the eucalyptus variety, and are 435 and 450 feet high, respectively.

It is said that the apple bloom is very abundant everywhere, and if sufficient resistance is made against the insects and fungus diseases there will be a plentiful crop.

A good plan for sacking grapes is to put a wire around the top of the sack, which can then be easily placed in position and the wire twisted around the branches.

Orange and lemon trees may be freed from the enemies which infest them by spraying with the usual copper solutions. The orange grower who sprays his trees and fertilizes the soil gets a full crop.

Mr. Hancock, residing near Fort Meade, Fla., is said to have on his property the largest orange tree in the country. A few years ago it bore 7,000 oranges. Two feet above the ground it measures 24 inches in diameter.

It is highly important that the young fruit trees should be examined immediately after every severe storm. Where the trees lean from the effects of rain and wind, they should be straightened while the ground is yet moist.

Many young Englishmen are investing in orange groves in Florida, and by sending fruit to their friends at home are introducing the guava and pine-apple, as well as the orange, thus building up a trade.

Trees which have been rid of the pest of caterpillars can be insured against further invasion by placing around the trunk midway from the ground a sheet of tin, over which the caterpillars will be unable to pass.

Six trees have been removed to Chicago for exhibition at the World's Fair. They had an average hight of 40 feet and diameter of one or two feet. It required 25 men and 12 horses to move each tree, and the cost of each was over $100.

Bordeaux mixture, made with one pound of sulphate of copper, one pint of ammonia and 22 gallons of water, is recommended for pear blight. When discolorations appear on the leaves, they should be sprayed immediately with a common garden syringe, and the leaves will not fall.

Grafting can be done any time before the inner layer of the wood grows hard and separates into new wood and bark. The time is from the starting of the leaf to Midsummer, when budding is usually practiced with trees which are not easily grafted. The peach is usually grafted in July and August.

Low training of fruit trees is advantageous in many respects. The trunks are prevented from being scalded by the rays of the sun, and the low growth acts similar to mulching, without making the soil sour or wet. The fruit can be easily and rapidly picked, and there is less liability of injury from heavy winds.

There are at the present time about 400 varieties of pears under cultivation in this country, but not more than a dozen of these, perhaps, can be cultivated with any degree of profit. The most extensively-grown pear is the Bartlett, and its quality is known and appreciated by all lovers of good fruit.

The time is coming when fruit will be packed for sale with the finest specimens on top. This is an old trick, and deceives none but the very unsophisticated. The dealers know it well and pay accordingly, so nothing is made in the end. Besides, purchasers are secured and retained by the quality of the fruit in its first state.

Washing trees with soft soap and carbolic acid will keep rabbits away. A quart of soft soap to three quarts of boiling water, and two ounces of carbolic acid, applied with an old shoebrush, is strongly recommended, a writer having tried it on more than 1,000 trees, and not one was injured. If applied twice a year it also repels borers.

Careful attention to spraying and thinning cannot but result in the production of a superior article. All fruits deformed in any way should be removed, and especially should those affected with worms be not only taken from the tree, but treated so as to destroy the worms. When two or more of the fruits appear in a cluster, all should be picked off but the best one.

The demand for olives in this country is greatly increasing, and orchards in southern California are being taxed to their utmost to meet the demand. Over 450,000 trees have been shipped to California since January, and large financial returns are forthcoming. In November of last year $65,000 worth of olive oil and pickled fruit were produced in southern California.

The slugs are a source of great loss to the farmer unless steps are taken for their destruction. These insects are of a glossy black color, and are slimy and disgusting in appearance. They feed from the leaves of trees, devouring the spongy portion. They may be effectually destroyed by the use of powdered hellebore. It may be distributed in the form of powder, or may be mixed with water to good effect.

The Germantown *Telegraph* would do away with the suggested remedies for black knot by destroying all trees affected. It holds that when even a small branch of a tree is attacked, the entire sap is poisoned, so that the disease cannot be checked by pruning. Other authorities say that if the trees are carefully watched and the spores cut out immediately after they appear that it may be prevented from spreading. In New York, as fast as the trees are discovered to be infested, they are burnt. The Legislature has passed an Anti-Black Knot Bill, which provides for the punishment of those who do not destroy such trees. The plum trees need most watching, and wild cherry trees should be cut down and burnt.

The Apple Orchard.

Some valuable suggestions made by Prof. Lazenby at an Ohio Horticultural meeting were as follows:

Never plant deeper than the tree stood in the nursery row. Never omit applying a mulch to young trees if there is the slightest danger of a drouth. Never forget that low, stout (not stunted) trees are preferable to tall, slender ones.

Never forget that a hardy, vigorous, productive variety, of medium quality, is infinitely more desirable than a feeble-growing, shy-bearing variety of much better quality.

Never buy a large number of varieties for a strictly commercial orchard. This is a common and serious mistake. Five varieties are usually too many; three are better, and a single one may prove to be the best of all.

Never fail to have a succession of apples for home use. For this purpose a few trees each of a somewhat larger list of varieties may be selected.

Memorial Trees.

There always seems to be rather a close connection in our minds between a growing plant or tree, and the one who planted it. Even when years have passed, and perhaps the friend has passed away, too, they still seem nearly associated. Hardly a visitor at Mt. Vernon does not take away with him one or more of the glossy leaves lying under the Magnolia tree which is pointed out as having been planted by Washington himself.

At the country homes of Mr. George W. Childs and Mr. Wanamaker there are numbers of trees planted by distinguished visitors, and sometimes named after them. A good deal of pleasure may be derived from this practice. Even if our visitors are not distinguished, it is pleasant to have them, when they go away, leave such a reminder of themselves, and if it should be that we do not see them again, we will find ourselves giving extra care and attention to the plant that it may live and flourish. Sometimes a flower or shrub may be more convenient to plant than a tree, and will perhaps answer just as well, though the latter is apt to last longer than anything else.

To Destroy Stumps.

Numerous methods of removing stumps are in vogue, but perhaps the most effectual and rapid way to perfectly remove them is to blast them with powder or dynamite. Black powder is thought to be the safest, and should be used in the following manner: Bore a hole about one and a half inches in diameter in the solid part of the stump and put into it about eight inches of powder, tampered with sand. An iron screw should be made to fit the hole, and with a hole through it for the fuse. It should then be screwed down tightly and the fuse fired. If this is properly done the stump will be broken into pieces, and what is left can be easily removed.

Big Timber.

The largest piece of white oak, probably, that was ever sawed to order and shipped to New York was 30 inches square and 50 feet long, and measured 3,750 feet board measure. It weighed 22,500 pounds, railroad standard weight for green oak timber. The tree measured over three and a half feet in diameter 50 feet from the ground. Another piece was also received at the same time which was 24 by 20 inches and 60 feet long. The two pieces made 6,150 feet, and were all that was shipped in two cars which came from Ohio.—*New York Recorder.*

RUGS.

A Cheap Method of Making Very Pretty Ones.

EDITOR AMERICAN FARMER HOUSEHOLD: I saw some beautiful rugs the other day, and at once put the maker of them through a catechism, which developed the fact that they were made of burlaps or coffee sacking, and in such a way that small pieces can be used.

Get a piece of strong cloth, the size wanted for a foundation, then prepare your burlaps by cutting it into strips about six or seven inches wide, and raveling out each edge, leaving about an inch in the center to sew it on by. As each strip is sewed to the foundation turn the fringe back and sew the next strip close to the preceding one, and you will soon see that the face of the rug looks like fur or moss. Sew the strips on by going around the rug, either working from edge to center or the reverse, just as it is easiest to do, for it makes but little, if any, difference in the looks of the rug. When raveling the strips it saves time to fold it and ravel both edges at once. Never wash the burlap before raveling, as that makes it much harder to ravel; but if it needs washing dip it up and down in good hot water after it is all sewed on to the foundation, just before coloring. To color them, make a dye and dip the rugs in it while hot. After they are colored trim the right side to make it even and line the wrong side to cover the stitches.

To make a rug with a border of different color: Put as wide a row as you want on the outer edges of a foundation the full size of rug; then cover another piece large enough to fill the space left on first foundation; color them separately and then put together and finish like the others. One rug was colored green, and was a good imitation of moss. Be sure to wear an old dress, or one that can be washed, while working in the burlap, for the lint will ruin anything that cannot be washed.—ONYX.

British farmers are asking their Government to take steps to protect them from the field-mice, which are invading the country, particularly Scotland, in great numbers, and devastating the crops.

THE DAIRY.

Skimmings.

The Canadian cheese factory is to make a cheese weighing 15,000 pounds, for exhibition at the World's Fair.

A Jersey cow of Huntsville, Ala., has credited to her for 361 days 6,029 pounds, 13 ounces of butter. This is quite a record for four days less than a year.

A successful dairyman in Delaware feeds all his skim milk back to the cows instead of giving it to the calves and hogs. His results are most profitable, and he thinks that this is the best plan.

Americans, as a rule, are a salt-eating people, and many prefer to have their butter with the saline flavor predominant. Makers use from one-quarter ounce to one and a half ounces of salt to the pound of butter.

Care should be taken not to allow the cows to have access to the apple orchard, particularly when the trees are trained so low that the fruit can easily be reached. By eating apples, or any other fruit, to excess, the milk of the cow will be damaged.

Milk is an absorptive fluid, and it greedily receives and holds bad odors if it is kept in a cellar or room with other articles for any great length of time. The best results are obtainable by having a separate cellar for the milk, with closely fitting doors, and kept clean at all times.

There was imported from Glasgow, Scotland, recently, a machine with which it is claimed a cow can be successfully milked. The action is such that the milk flows out in a continuous stream. The work is done easily and rapidly, and 30 cows can be milked in one hour. This instrument is used to a large extent in Scotland, and is said to have produced satisfactory results.

Milk should always be kept in a cool, airy room, and when it is set in pans, they should be slightly raised from the shelves on which they set, to allow the air to freely circulate beneath and around them, and thus advance the cooling of the milk. A good way to accomplish this result is to procure two boards about six inches wide and five feet long for the upright pieces. Strips of boards about three-quarters of an inch thick and three inches wide should be nailed so as to reach from one upright to the other, and by resting the pans on these edges the air can circulate all about the pans.

Cheese Making in Canada.

The Canadians have made great improvement in quality and quantity of their cheese. The old and slovenly methods have almost entirely disappeared, and modern ways have usurped their place. This improvement is due to the interest which the Government has taken in the manufacture of cheese. Competent instructors during the last few years were sent among the cheesemakers at the expense of the Government, and the result of their work is now being shown.

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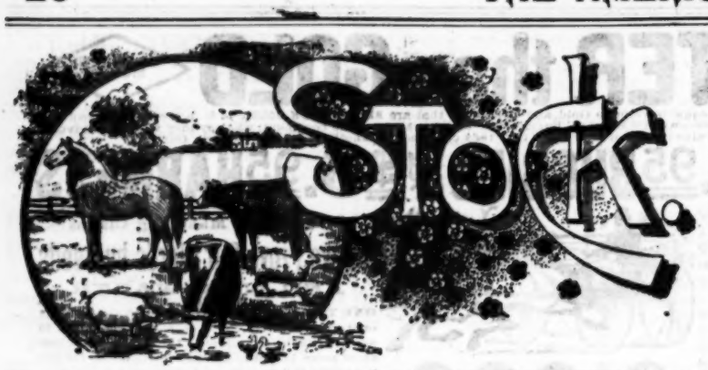
Having called the attention of your readers to the importance of great care in selection of cows and manner of feeding them for the most economical production of milk, I now desire to follow it with a brief description of the most practical silos for a farm dairy. In the construction of new dairy barns the silos should be all built in second stories, and have the entire basement story for stable. Ensilage farming will double or treble the number of cows a farm can support over the old method of dry feed and grain; therefore, you must build more stable room. But the old-fashioned bay in the barns can be left, and in place of this build silos above, and the bulk of feed is so greatly reduced in ensilage there will be plenty room enough for that in a barn that will stable all the needed stock upon the farm, and one roof will cover it all. If you must build silos in old barns, if possible double the joisting for extra strength, and support them well from below in the stable room; or if they must be built from the ground up in the old bay part of a barn, then you need to prepare the bottom a little different from second-story floor silos. Make single thickness one-inch board ceiling, and flooring for second-story silos, all narrow stuff, none of it more than four inches wide, and it may be less, to utilize all your lumber. It must be planed and matched to bring it to even thickness, and make a smooth wall, so ensilage will settle freely. The side studding for a silo should be 2 x 8 or 2 x 10, or just the same width of the timbers of the barn, so the inside of the silo pits will be smooth. It should never be more than 16 inches apart, and is better to be 12 to 14. There is a strong lateral pressure to ensilage, and in pits from 18 to 25 feet deep great care must be taken to make them strong, or they will burst. Where one or more are placed side by side, the partition studding must be fully eight inches wide and close together, because you never feed but from one pit at a time, and when you get to the bottom of the first pit the next has to sustain great pressure. I have seen many give out, and they are ugly to repair. Always cut both sides of the partitions, first letting ceiling run through and nail on side studding, then put over this partition ceiling in the corners a 2x4 studding to nail the corner side ceiling of the pits on, and it is then utterly impossible for a partition to move out of place.

These cheap wooden silos are better than concrete or heavy stone masonry silos for the preservation of ensilage, because they will not absorb but very little heat from the ensilage; and another very important item, they do not cost a tenth part as much. Never make a double-boarded ceiling or flooring for wooden silos. Two thicknesses of boards will retain moisture between them a long time when empty, and decay is inevitable; no man or agency can stop it; besides this, it is not necessary—one thickness of matched boards will soon soak up or swell up the lumber watertight, after the pit is filled with the moist, fresh-cut ensilage, and when that is done, of course, it is air-tight. This fills the perfect requirements of a silo. And it is just as necessary to make two thicknesses of staves for a liquid barrel; no greater mistake. Away with tarred paper and everything of the kind that will retain moisture; it is an actual damage and of no earthly use.

I have six of these cheap wooden silo pits in my dairy barns, on two farms. I have used them five years with perfect success, and thousands more are now in use of the selfsame kind, and in no single instance a failure. The cost of these pits, four of them, in one barn, 15 feet square, inside measure, 12 feet deep, and holding fully 50 tons apiece, was only a little over $20 apiece, or less than 50 cents per ton capacity. Most of farmers can build these alone without cost except for the hardware and lumber. I have two others in another barn, built in an old bay part of a dairy farm, 12x16, and 18 feet deep, holding 70 tons each, that did not cost quite $50. These two pits had earth floors on clay soil, and to keep it dry I had to fill in six to eight inches deep with cobblestone, and put gravel top of that to make it smooth, and it does it well. Sandy and gravelly soils may not need anything but the bare earth. Let the ceiling of the pits go from the ground up, always laying it horizontal, so it will dry out evenly. Have the tongue-side of the boards up, so it will not hold water in the matching when emptied.

Any fair outside ceiling or covering of a barn will be warm enough; there is no danger from frost, for the ensilage keeps it warm. Leave the space between the ceiling of the pit and outside covering of the barn a clear air chamber, so it cannot gather moisture or retain it. Get a good strong feed cutter, with carrier long enough to reach from the ground outside of the barn to the top of your silo pits, and you can cut and put up into the pits from 50 to 100 tons per day, at a cost of from 25 to 40 cents per ton. You then have corn shucking and husking in the field ended; cribbing and drying ear corn ended; hauling to the mill to grind, and miller's toll all done away with, and your ear corn all cut up and cooked in the silo, served to the cattle in its most digestible form, either warm or hot, and all business ended in one short job; four wagons to haul the maturely grown corn from the field, three teams to run them, leaving a wagon every time at the machine for three men to unload into the machine, and have the corn cut up beforehand in the field and laid in big flat piles. I have 600 to 800 pounds in mine, and in this way we frequently put in 100 tons in 10 hours. We have now so many silos that our thrashing-machine men own feed cutters, and go around with them, the same as they do with grain thrashers, and charge us $6 per day for traction engine power feed cutter and one man. That now saves us trouble and expense. The dairy farm that is fortified with silos and good cows for the business is ready to coin money (free silver and gold both on the farm), providing they make good butter or good cheese, and don't spoil it by improper keeping. In my next article I will give my method of manufacture, care, and sale of butter, and hope to prevent some of the wicked waste of farm butter either poorly made or spoiled after leaving the dairyman's hands and getting into the merchants' possession.—H. TALCOTT.

In 1891 the people of Great Britain and Ireland spent for liquors over $700,000,000, or about the total value of the commerce between that country and the United States. This was an average of $18 for every man, woman and child in the whole kingdom, or $100 for every family. Nearly $8,000,000 more was spent for drink in 1891 than in the year previous. Is it any wonder that one out of every 30 people in England is a chronicpauper?



Stable Talk.

When purchasing a horse a good way to test the strongness of his limbs is to lead him up and down a slope a few times. In this way he will more clearly show any lameness or imperfection should he not be perfectly sound.

The fourth annual meeting of the St. Lawrence Valley Horse Breeders' Association will be held at Malone, N. Y., July 4 and 5 next. This association offers stakes for trotters only, and adds from $40 to $125 to each stake. P. R. McMonagle, Canton, N. Y., is Secretary.

The Philadelphia Horse Show Association opened its first annual exhibition at Wissahickon Hights, May 30. The show was held in the open air, and the grounds, which are 550 feet long by 400 feet wide, are equipt with a big grand stand, judging ring, box-stalls, barns, and, in fact, everything needed to conduct such a show. Many of the finest horses in the vicinity were entered.

Mr. Robert Bonner has a filly which he believes will be a flier. She is from Maud S, by Ansel, one of the greatest sons of Electioneer. Mr. Bonner is a very warm champion of the infusion of running blood in the trotter, and it is claimed that this mixture of blood will increase the prospects for extreme trotting speed and endurance. The filly has a small star in her forehead, is sorrel in color, and her two hind feet are white to the fetlocks. Her head is clean cut and broad between the eyes. Her neck is full of quality, the ears are silky and well set out, and the nostrils are large and thin. She will be speeded after she is 18 months old.

During the warm weather the horse's hoofs will be better preserved if the animal be allowed to go barefoot. When the shoe is taken off, be sure that every nail, or fragment of one, is taken from the hoof. Carefully pare any broken horn, as this will lead to the splitting of the hoof if not attended to. If the horse is to be worked on stony roads or lands, it is best to let him keep his shoes, as the rough condition of the land will tear and ruin his hoofs should he go barefoot. When the animal is allowed to roam without his shoes the horn will become firm, tough, and elastic, and the foot, in addition to growing healthfully, will keep cool and sound.

The training stable of Woodburn Farm, at Lexington, Ky., was totally destroyed by fire on June 5, the following valuable horses perishing in the flames: Pastime, 2:27¼, g c by Lord Russell, dam Noonday by St. Elmo; Engardine, b c 3, by King Wilkes, dam Englewood by Belmont; Teneriffe, b c 3, by Stowaway, dam Tulip by Alexander's Abdallah; Muteria, b f 4, by Matterhorn, dam Dolly, dam of Belmont Jr., 2:23½; Antigone, b f 3, by Herold, dam Menetta by Vakeel; Fonina, b f 3, by King Wilkes, dam Puella by Herold; Petroline, b f 3, by Lord Russell, dam Patrol by Onward; Radiant, b f 3, by Lord Russell, dam Rosabella by Belmont; Solvent, b f 3, by Lord Russell, dam Nina Wilkes by George Wilkes.

A Cure for Sore Neck.

The increased temperature is felt as much by the horse as by the man. When the horse is worked hard the perspiration makes his collar slip and move around, especially it it is an ill-fitting one. This will result in a sore neck unless the animal has been sponged quite often. If the following be applied three times a day a cure will be soon effected: Simply two ounces of sugar of lead and one quart of rainwater, well mixed. When the animal is cured take good care that his neck does not get sore again.

The Hackney Horse.

The merits of the hackney horse are not fully appreciated in this country, but the time is not far distant when they will be. The idea that these horses are of no value except for saddle or harness is absurd. They have a value beyond that. By experience it has been found that hackney stallions possess the wonderful power of leaving a most serviceable class of animals when mated with other mares. A sire of this breed leaves a very excellent animal when used to a Clydesdale mare, and an animal of good proportions is obtained when put to cross breds or coach mares. A gelding bred in this manner from the Clydesdale is bigger and stronger than the pure bred, while the sire has transmitted to them the unequaled action and style of his breed.

Proprietor, 3223, a new hackney stallion, has just been added to the stud of the Glendower Stock Farm, of Glendower, Va. He was imported from Norfolk, England, and is a black brown, of the purest breeding on both sides, with great substance and action. For these points he was expressly imported as being adapted to breed to light mares. His sire, Excelsior, 198, was a noted prize winner, and has a long list of sons and daughters that have won prizes at English shows. We only mention this to show that increased interest is being taken in this breed of animals.

SWINE.

Pen Notes.

Clover hay is one of the best of foods for hogs, though this fact is not generally known.

Let the hogs run in the clover pasture, but while they are allowed to have this privilege do not fail to give them their regular feed.

For young pigs, food should be comparatively bulky to aid in the extension of their digestive organs and to make them good eaters.

If the digestion of the hog has become impaired from a constant feed of grain, cook the food, and it may result in the restoration of proper action of the stomach.

Hogs confined in muddy runs take too much dirt into their system, and the animal, instead of increasing in size, decreases. The flesh of such hogs is not very palatable, either.

Winter feeding cannot be made as profitable as Summer feeding. There is no excuse for stocking hogs over. It takes more feed and costs more to fatten them up than it takes to raise a new litter of pigs.

In the majority of cases it does not pay to raise pigs for the meat market to any very high weight, as with the progress of age the animal loses a great deal of the power of assimilating food and of economically converting it into flesh.

Give the young pigs plenty of milk and wheat middlings. Be careful, however, that they are not overfed. Later on cornmeal can be given. This ration will prepare the pigs for market as rapidly, if not more so, than any other ration.

If too much salt is given in the food of the hogs it may result seriously. It will cause nausea and vomiting, and in some cases death follows. The best way is to place a lump of rock salt in easy access to the animals, and they will use it only when nature requires it.

By feeding the pigs with wood ashes, they exhibit a better appetite for their meals and their food is better digested. Whether it is the potash or lime in the ashes that they relish is not known, but it is clearly apparent that when they are fed with the ashes they eat more of other food.

It is better for farmers to grow their own pigs. It is not only cheaper, but they can raise better stock. In addition to this, no farmer is going to kill for his own use any hogs which have any trace of disease. A good many unscrupulous people kill their hogs and sell them when they find that disease is beginning to take a hold on them.

Stone coal, charcoal, rotten wood, and like material are requisites for the hogs. They serve to regulate and neutralize the acids of the stomach, and a supply of these will insure good digestion, which is eminently essential for a healthy pen. It has been stated that in nine cases out of 10 the disease to which hogs are subject to are confined to the stomach and bowels.

An experienced correspondent claims to be able to make pork at one and a half cents a pound by judicious use of skim milk and pasture, finishing with a little corn at the last. Pigs can make the best use of the skim milk of a dairy farm of any other animal, and they will improve the land almost as much as sheep. Our correspondent never lets his pigs pass their 10th month. Wintering takes all the profits out of pork-raising.

Green Food For Figs.

If the land can be spared, it is worth while sowing a small field of peas as green food for pigs. The richest and heaviest soils should not be selected for the peas, as early lodging and consequent mildew should be avoided. Sow one and one-half bushels of peas, mixed with about three pecks of oats, to the acre. The oats will furnish a support for the peavines and keep them from early lodging. When the peas are about fit for table use, cut and feed to the pigs. As a soiling crop to milch cows and calves, satisfactory results will be obtained, with no loss of fodder, whatever, being sustained. The peas and oats can also be harvested, thrashed, and used as a Winter feed for pigs, with much satisfaction. When ground for milch cows they serve as an excellent food. The crop can be sown broadcast, and covered with a disc harrow.

Fertilizing in an Indirect Way.

As is well known, clover is one of the best of green crops that can be used to restore fertility to the soil. But clover uses more potash, lime, and phosphoric acid than any other crop. It adds nitrogen to the soil, but in order to add this important factor it must be well supplied with the other elements. If it were not for the symbiosis in its root nodules, clover would be a very exhaustive crop if constantly mown, and it would not be long before the soil would be exhausted of the elements necessary to grow it and other plants. In this respect it would be better if we indirectly fertilize all our crops.

You will probably wonder what is meant by indirect fertilization. It is simply this: Before the land is sown in clover give it a liberal application of fertilizers which contain phosphoric acid and potash in abundance. Top dress the land thoroughly and then sow. The first crop can be cut and stored away. After the second crop has reached a fair size turn the stock in it to graze. Right here it may be well to watch the cows when placed on this field, or they may get hoven. After the stock have done their work take them out and prepare the field for wheat. If the land is not suited for clover, then peas and other soil-renovating legumes can be sown. An 80-acre field which was fertilized indirectly gave a yield of 46½ bushels to the acre.

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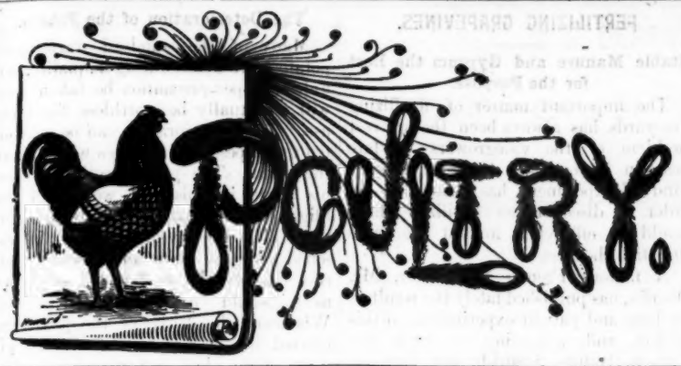
We have the variety that is **tested** and acclimated. We offer **pedigree seed**, crop of '92 inspected and guaranteed in sealed bags. For the *Scarlet Clover Bulletin*, No. 16, of the Delaware Agricultural Experiment Station, circulars, prices, &c., address the growers—**The Delaware Fruit Exchange**, SAM'L H. DERBY, Sec'y, **Woodside, Delaware.**



Cacklings.

Watch the flock.

Provide shade.

Lookout for gapes.

Examine the young chicks for lice.

Give plenty of pure drinking water.

Make the hens work for their midday meal.

Give a full ration when the fowls are preparing to go to roost.

Poultry will never thrive where the runs or hen houses are damp.

Ducks need a coarse, bulky food in addition to their grain ration.

Lettuce is greatly relished by all kinds of poultry. If possible, sow a small patch for them.

If a change is to be made in the rations of a chicken it should be done gradually, so that the system may have time to adapt itself to the change.

It will be more comfortable for the fowls during the warm weather if the heavy wooden door be taken off its hinges and one of fine wire netting substituted.

While ducks will remain all day on the water, they should not be made to sleep on damp floors. Plenty of straw should be used and cold drafts should be guarded against.

It is poor policy to allow the hens to scratch on the manure pile. The result is evident in the flavor of the flesh and eggs. It would be better if they be allowed to scratch in straw or chaff.

A good plan—and an economical one—is to feed back to the hens all the egg shells possible. They should, however, be broken in very small pieces, for if thrown in the poultry yard nearly whole the fowls will soon learn the egg-eating habit.

A good way to catch hen hawks is to put up tall poles in the yard, or wherever they pay the most visits, and on these put a steel trap. The hawk will light on this and be imprisoned in the trap. The poles should be so arranged that they can be easily taken down to reset the trap.

Those who intend to market their Spring chicks had better keep them growing fast, so as to reach the market ahead of other poultry. Along in August the prices are better than later on, and it is obvious why they should be fattened as quickly as possible.

The value of lime cannot be overestimated. If a small box full of air-slacked lime be placed in the poultry house, in addition to absorbing the moisture and foul odors, it will kill a good many disease germs. Those who make use of the hen manure had better be cautious, however, of the liberal manner in which they use lime, as it injures the quality of the droppings.

Lice.

To make poultry profitable on the farm or in the city we must look after the health of the hens, etc., and one of the breeders of disease, or the fountain-head where disease starts, is lice. I shall not attempt to prove that lice are the direct cause of cholera, etc., though I never saw a sick bird that did not have more or less lice on her. But how to get rid of them? Nearly every day I hear of someone complaining that their hennery is just alive with lice, or their hens are dying from some cause. As the Summer advances the poultryman who does not keep a sharp lookout in his poultry quarters may come short of a bank account this Fall, for Biddy has passed resolutions time and again that she will not help fill up that egg basket unless she is kept free from those little mites.

The subject has been written up time and again in the columns of this paper to keep our poultry free from lice. We must make good use of coal oil; keep the floor sprinkled with lime, and whitewash the walls of the house. But I am sorry to say very few follow the advice, and the next thing we hear is that everything is alive with lice. Then we want to know how to make a wholesale business in getting rid of them, because after the lice once get a good hold on the hennery and Biddy well stocked with them, it is nearly impossible to make a clean sweep of them. The most successful plan I have ever tried is to take a tub of water, a little warm, on a sunshiny day, and make a soapsuds of carbolic acid soap. Take Biddy by the wings and immerse her. See that her feathers are all wet, but do not put her head under only once, as the acid may injure her eyes. Go over the whole flock in this way. Then go for your hennery with your coal oil and you kill all the lice in one day. Sprinkle the nest with insect powder, which can be had at the drug store for 5 cents an ounce. It takes very little for a nest.

To rid chicks of lice catch them when they are three or four days old, at night—the lice go to the chicks' head then—and grease their heads with lard. Some mix coal oil with the lard, but lard by itself will do the work, and the chicks' eyes is in no danger.—J. R. COTTON, Emporia, Kan.

Dampness.

To all the denizens of the poultry world, dampness has more or less effect, and in a good many cases the effect is fatal. Fowls cannot be made to give profitable results where dampness prevails, and it is pure folly to try to force health among fowls by giving medicine, where the runs or houses are damp. There are some classes of ducks—in fact, all dunghills—which seem to take especial delight in swimming in pools of water during the daytime, but if the houses in which they roost at night are not free from dampness, it will not be long before the effects are shown on the ducks. One of the prime causes of the alarming fatality among young turkeys is dampness. Young chicks have the same mortality among them if their quarters are damp. Roup, one of the diseases with which the poultryman has to contend, has its origin in dampness, and one of the surest cures is to place fowls where there is not the least trace of dampness.

If the dampness is in the houses, there is a remedy for it. All stone of brick hen-houses are more or less damp, though there are some cases where poultry has been quite successfully raised in houses which were built of stone or brick. If the stone house, however, be damp, the best thing to do is to build quarters in some other section of the yard. Some people are of the opinion that if they cover the sides of the poultry-house with oilcloth or other covering—just as a person would do to prevent dampness showing through a wall of a room which is about to be papered—that that will be a remedy. This is all a mistake. The dampness is there, and the evil effects are just the same. Should the wooden house be damp, probably the best plan would be to elevate the house, covering the floor several inches deep with road dust, and having a board-walk inclined to afford the fowls access to the house. If the run which the poultry have is damp the land needs draining, and if the land be tiled, it will probably eradicate this evil. This method to most poultrymen is too expensive, and their cure is to move the poultry to another place. Roup is a precursor of dampness, and if that disease breaks out among the fowls, the poultryman knows that it is not only essential to cure the disease, but the cause also.

A New Cure for Gapes.

I do not mean to say that I have discovered a new cure for gapes, as probably it has been used by others who have not made it public, but I do mean to say that it is effectual. I noticed one of my chicks drooping, and after examining it for lice without success I set the cause down as being gapes. After results proved that it was this disease. I let the chick alone for two days as an experiment to see how the disease affected the bird. At the end of the second day it would not move, and all that was necessary to catch it was to walk up and pick it up. It looked so bad that I had not the heart to let it suffer longer, and determined to kill or cure it.

I purchased some turpentine and mixed with it some flower of sulphur. I shook this mixture thoroughly, and with a feather gave the throat of the chick a good swabbing. After I had liberated the chick I thought that it would die. I thought that I had let the disease run on until it was too late to effect a cure, but as after events proved I nipped the disease in the worst stage—in the bud, I might say. The chick staggered and walked with its head down, reminding me greatly of the manner in which a bull charges upon an object. It would walk a short distance and then back, shaking its head violently as if in great pain. I let it alone, only seeing that it went to bed with its mother. In the morning there was a great difference. The chick would eat, and in the afternoon it was scratching with the others. Since then I have tried this remedy on other chicks as the disease appeared, with satisfactory results. I would recommend it for others to try. Turpentine by itself is a good cure for gapes, as is also sulphur, but the combination of the two is a dead shot for the gape worm.—MRS. MARY HAYWARD, Hagerstown, Md.

A Good Feed.

The following is a good feed for the poultry, and admits of variety. Take about three-fourths of a full feed of oats and soak it in water for about 15 minutes. A large amount of water is not required for the soaking. Place with the oats a spoonful or two of ground bone, and then add bran enough to absorb all the water. When this mixture is made it resembles chop feed, and it should be given to the fowls in the morning. At noon throw wheat in places where the hens will have to work to get it, and at evening give a full allowance of corn. The feed can be changed, and barley, rice, or other grains given for the mid-day meal. The morning feed may also be changed, but it is best to let the corn form the evening ration.

Pekin Ducks.

How many eggs does a Pekin duck lay a year?

Is it true that ducks are never lousy?

Are ducks' eggs more fertile than hens' eggs?—N. E. G., Montgomery Co., Md.

A good laying strain of Pekin ducks will give between 120 to 140 eggs a year.

It is said that ducks are never lousy. The lice do not seem to trouble the ducks, and for that reason it is claimed that they are free from lice.

We do not think that there is more fertility in ducks' eggs than in those of hens. Some people, however, assert that there is.

The farmers of Texas are exhibiting a marked interest in the cultivation of "ramie," or China grass, from which grass cloth is made. It is quite easy of cultivation, and is not seriously affected by excesses of the weather. It is thought that with proper care and attention an article can be produced to equal the ramie of Java. The fiber somewhat resembles hemp, and makes a glossy cloth stronger than linen.

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THE GARDEN.

Pluckings.

Planting cucumbers for pickles should be done as soon as possible.

Egg plants may now be set out without any danger of their being injured by the weather.

Okra can be planted during the remainder of this month. The sooner, however, the better.

The sweet potato, in addition to being a good food for man, is a delicacy for the hog. If there are any left over give it to them.

The Jerusalem artichoke, which is a native of Brazil, was first introduced in this country some time during the 17th century.

The seed of the Winter cabbages should be planted same time during the beginning of next month. It is better to plant the seed in rows rather than sow broadcast.

Remember, if you want to have a good crop of strawberries next year, you had better cultivate the strawberry patch now. Do not wait until the last moment, when it will probably be too late.

The State of Sonora, Mex., grows a large number of watermelons of excellent quality, and the business of importing these melons into the United States is assuming large proportions.

A valuable adjunct to the garden is that of a few shallot plants. These plants, which are of the onion family, are easy to grow, and make excellent seasoning for salads and sauces.

Squash vines may be rid of the bugs which feed on them by placing boards among the plants. During the night the bugs will gather on the boards, and may be killed in the morning by spraying with a kerosene emulsion, or other means.

The young celery seedlings should be transplanted as quickly as possible, if not done yet. Give the plants two or three inches space, and do not shade it too much. The final transplanting can be done during July and August in the North, while it may be delayed as late as September in the South.

It is unfortunate that the bad odor diffused by the onion should prevent it from being partaken of by many persons, as it is undoubtedly one of the most healthful vegetables extant. It is very easy to digest, and gives the stomach a well-needed rest, besides absorbing bad matters left in the system by previous ill-feeding. A cold can often be cured by eating just before retiring a bowl of onions cooked as soft as possible.

For the cultivation of navy beans the ground should be prepared as for corn, and where the soil is not very good, manure should be added. The planting should be done in rows about two feet apart, and the seeds should be two or three inches apart in the rows. This crop is to be cultivated about the same as corn. As soon as the pods become thoroughly dry the plant should be pulled and placed in the barn to become dry, and then by using a flail the beans may be beaten out and afterward cleaned.

IRISH POTATOES IN THE SOUTH.

Points on the Preparation of the Ground and the Mode of Planting.

During the last 25 years the Southern States have made rapid strides toward the development of vegetable culture, and the progressive nature of the average American farmer has caused many new ideas to be promulgated, the carrying out of which has wrought undoubted benefit to the pursuit of agriculture. Particularly noticeable, by reason of its advancement, has been the raising of Irish potatoes. During later years second crops have been grown in the latter part of the year, and the potatoes thus raised used for planting the early crop of the succeeding year, thus obviating the necessity of bringing potatoes from the North for that purpose. The culls, or potatoes unfit for shipping, are generally used for planting the second crop, and should be well greened by being spread in the shade of a tree or other screen. Then, having been bedded in a single layer and covered with about two inches of soil, they should so remain until the time for planting. In Maryland the second crop can be planted as early as the first part of August, and in North Carolina, the latter part of the same month, while those in Florida may be planted as late as September. With the late crop the conditions are different from the early one, and accordingly the cultivation and preparation of the ground must differ. A good system, as presented and advocated by Mr. W. F. Massey, in the 85th Bulletin of the North Carolina Agricultural Experiment Station, is to lay off the furrows three feet apart, and have them uniformly deep and regular. The planting should be done at the bottom of the deep furrow, and at a time while the soil is fresh. The rows, having been covered with a hoe, should be tramped over to press the soil to the seed. Where a large amount of planting is done a covering machine can be successfully used. Important points to be observed in this late cultivation are as follows: Be sure to bed the seed in the soil until planting time, thus getting rid of those too immature to grow. Always plant the potatoes in a whole condition. As the plants grow gradually, fill in the soil and cultivate the crop flat.

It is shown that inquiries addressed to 35 Southern farmers elicited replies from 26, setting forth that, in their opinion, the fall-grown seed made the better crop, and was the least affected by the changes of weather. In the face of the loss occasioned by the depression of the cotton-growing interest, this industry should suggest itself to the growers of late crops as a ready means of accumulating profit.

"Corn Cake" Murphy.

Mr. Murphy, who is using his best efforts to create a demand for American corn in Europe, writes from Berlin that great progress is being made in that direction. There are at present 13 mills in operation in Germany, and they are running night and day to meet the demand for ground corn. Other mills are in course of erection in various parts of the country. Bakers in Dresden are selling maize-rye bread, one part being maize and two parts rye.

FERTILIZING GRAPEVINES.

Stable Manure and Gypsum the Best for the Purpose.

The important matter of fertilizing vineyards has always been the gravest problem of the vinegrowers of late years in Europe and America. Every kind of experiment has been made in order to discover the fertilizer which would be efficacious and at the same time the cheapest.

A famous French vinegrower, Mr. Oberlin, has published lately the result of his long and patient experiments on this subject, and, according to what the French, Italian, Spanish, and German press say, it seems that he has found the solution to the problem.

A reporter of *Il Buon Consigliere*, of Rome, Italy, has had an interview with a gentleman who for the last 10 years has been associated with Mr. Oberlin in his experiments, and sends to his paper the following report:

I shall try to be as clear as possible in the exposition of this new system of fertilizing grapevines, and I shall leave apart all theoretic and scientific demonstations, intending only to expose the practical side of the question.

Mr. Oberlin advances, before all, the following theory: Nothing can be substituted to the stable manure for the culture of the vineyard, for the most important element to make it proper and grow is the azote. In stable manure, the azote [nitrogen] exists in important proportions.

The air which we breathe also contains azote but the most serious thing is that the vines cannot, as the leguminous plants do, absorb directly from the air the necessary quantity of azote; they absorb a certain quantity of it which is too little to produce important results.

Therefore the base of the Oberlin system is to continue to use stable manure, though never in contact with the roots.

But during his 40 years of experiments he has been able to ascertain that the manure for years does not exercise any visible influence on the vegetation of the vines; therefore, part of its azote, little by little, is lost and is assimilated and absorbed by weeds.

In order to obviate this difficulty, the sage French wine-grower has searched with great patience for long years for the material, the re-agent, that could economically separate the azote from the manure under or near the trunks of the vines in such a manner that the roots might absorb immediately this substance indispensable to the vegetation of the vines.

Without the valuable help of this stimulant the manure is a kind of dead capital which does not pay interest except after many years.

The result of the patient investigations of Mr. Oberlin is that crude plaster—viz, the plaster as it comes out from the vine—is the strongest agent capable of causing an immediate separation of the azote from the manure.

Here the reporter gives some particulars regarding the chemical composition of the plaster, and the price of the same in Italy, which is about $1.50 per ton.

In the United States, and in Michigan particularly, we have very extensive deposits of plaster, and I do not think that the price is high.

The report ends by giving the practical way to use the plaster:

Make around the vine, in a surface of one square yard, five or six holes of one-half inch of diameter, and as deeply as to reach the bed of manure. Pour one-half pound of plaster well powdered in each of these holes. The holes may also be only half filled and the rest of the plaster scattered around the vine before the first Spring plowing.

—*Alex. Mastro-Valerio, in Mobile Register.*

Of all fools, the biggest fools are the fools who think a solemn man is necessarily a wise one.

The Deterioration of the Potato.

Many of the standard varieties of potatoes are deteriorating in quality, and unless proper precaution be taken they will eventually be worthless for table use. This deterioration can be attributed to the pests and diseases which affect the plant. The potato beetle has done his share in this bad work, and the blight and rot have fully keep pace with him. The vitality of the plant is lessened by these pests and diseases, and, consequently, the seed is not so perfect as it would have ordinarily been. Whenever the leaves of the plant are injured, it not only diminishes the vitality of the plant, but gives less protection to the tuber; and, as the tuber obtains considerable atmospheric nourishment through the leaves, their loss must more or less affect the quality and quantity of the yield. The seed from plants so affected is not so vigorous as it would have been had the plant been free from these troubles; and when the seed from such diseased plants is used year after year it can be seen why the quality is deteriorating. The only way to overcome this obstacle is to take none but the best tubers for seeding purposes, and these can be secured only from the most vigorous vines.

Oldest Rose Bush in the World.

A St. Louis exchange is responsible for the statement that the oldest rose bush in the world is at Hildersheim, Hanover, where it was planted more than 1,000 years ago by Charlemagne, to commemorate a visit made to him by Caliph Haroun-al-Raschid. A beautiful cathedral was built over it after it had become a large vine, and in 818 a coffin-shaped vault was built around its roots. The vault and bush survived a fire which destroyed the cathedral in 1146, and the bush is now said to be 26 feet high, with a stem only two inches in diameter.

A towel trust has been established. It will come down with a crash.—*New Orleans Picayune.*

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AND

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NORMAL TEMPERATURE AND RAINFALL, WITH DEPARTURES THEREFROM, FOR THE WEEK ENDING MONDAY, JUNE 13, 1892.

DISTRICTS.	TEMPERATURE			RAINFALL.		
	Past 7 days.		Mar. 1 to date	Past 7 days.		Mar. 1 to date
	Normal.	Average daily departure.	Seasonal departure (average daily).	Normal.	Departure.	Seasonal departure.
Atlantic Coast.	°	°	°	In.	In.	In.
Eastport, Me.	54	+ 4	−1.5	.87	− .44	−6.20
Portland, Me.	61	+ 3	−0.2	.77	− .66	−3.09
Boston, Mass.	64	+ 3	−1.0	.77	− .47	−2.42
Block Island, R. I.	60	0	−0.4	.74	− .18	+ .45
Albany, N. Y.	67	+ 2	−1.4	.91	− .85	−1.78
New York City	67	+ 2	0.0	.75	+ .11	+ .52
Philadelphia, Pa.	70	+ 1	−0.7	.77	− .49	−1.06
Atlantic City, N. J.	65	0	−0.8	.73	+ .50	+2.25
Baltimore, Md.	71	+ 1	−1.5	.93	+ .01	+5.30
Washington, D. C.	71	0	−0.9	.98	− .74	+1.51
Lynchburg, Va.	73	0	−1.2	.84	+ .14	+ .22
Norfolk, Va.	73	− 1	−0.4	.98	+ .96	+1.67
Charlotte, N. C.	75	− 2	−2.0	1.05	− .75	−3.11
Wilmington, N. C.	76	− 2	−1.6	1.37	− .74	−7.96
Charleston, S. C.	78	− 3	−1.1	1.16	+ .48	−3.86
Augusta, Ga.	78	− 2	−2.2	.97	− .63	−3.55
Savannah, Ga.	78	− 2	−1.4	1.71	+ .01	−3.49
Jacksonville, Fla.	79	− 1	−0.6	1.26	− .58	−8.50
Key West, Fla.	82	− 4	−1.6	.96	+3.08	+ .76
Gulf States.						
Atlanta, Ga.	75	− 1	−2.1	1.00	− .20	− .51
Pensacola, Fla.	79	.....	.....	1.46	.....	.....
Mobile, Ala.	79	+ 1	−2.2	1.38	−1.12	−6.19
Montgomery, Ala.	79	0	−0.7	1.14	− .75	− .64
Vicksburg, Miss.	79	+ 1	−2.5	1.05	− .69	−3.58
New Orleans, La.	80	0	−1.8	1.60	− .60	−1.45
Shreveport, La.	80	+ 1	−3.6	.87	− .87	−1.98
Fort Smith, Ark.	76	+ 3	−2.3	1.05	−1.04	+5.19
Little Rock, Ark.	77	+ 3	−2.8	1.11	− .65	+4.03
Palestine, Tex.	78	+ 1	−1.4	.87	− .87	− .58
Galveston, Tex.	81	− 1	−1.9	1.19	−1.19	−9.41
San Antonio, Tex.	80	+ 3	+1.1	.63	− .63	−6.50
Corpus Christi, T.	80	− 2	−0.5	.71	− .71	−4.29
Brownsville, Tex.	81	0	.....	.82	− .82	.....
Ohio Val. & Tenn.						
Memphis, Tenn.	77	+ 3	−1.8	1.26	− .96	+5.63
Nashville, Tenn.	75	+ 2	−1.7	1.01	− .75	−3.24
Chat'ano'ga, Ten.	75	+ 1	−1.1	1.05	− .94	+ .19
Knoxville, Tenn.	73	0	−0.7	.98	− .64	− .67
Louisville, Ky.	73	+ 3	−.6	1.08	− .82	+2.88
Indianapolis, Ind.	70	+ 5	−1.4	1.21	− .41	+5.40
Cincinnati, Ohio.	72	+ 2	−0.9	1.15	+ .15	+ .90
Columbus, Ohio.	69	+ 5	−0.7	.80	− .45	−2.98
Pittsburg, Pa.	70	+ 2	−1.3	.77	+ .39	+ .57
Lake Region.						
Oswego, N. Y.	62	+ 3	−1.2	.77	− .37	+ .17
Rochester, N. Y.	63	+ 5	−0.4	.79	− .59	+1.60
Buffalo, N. Y.	62	+ 5	−0.3	.84	+1.84	+4.52
Erie, Pa.	64	+ 4	−1.0	1.10	− .98	−3.74
Cleveland, Ohio.	65	+ 6	+0.1	.95	+ .08	+4.30
Sandusky, Ohio.	67	+ 4	−0.3	1.04	+ .20	+6.86
Toledo, Ohio.	67	.....	.....	.84	.....	.....
Detroit, Mich.	65	+ 4	−1.4	.87	− .11	+6.81
Port Huron, Mich	61	+ 6	+0.9	.90	− .90	+ .93
Alpena, Mich.	58	+ 7	+1.3	.84	− .80	−2.07
Marquette, Mich.	56	+ 7	0.4	.91	− .81	+ .38
Gr'd Haven, Mich	61	+ 7	−0.8	.98	− .28	+1.26
Milwaukee, Wis.	61	+ 4	−1.7	.95	+ .03	+4.74
Chicago, Ill.	64	+ 6	−2.8	.87	+ .37	+1.25
Duluth, Minn.	56	+ 3	−2.4	1.25	+1.13	+6.06
Upper Miss. Val.						
Saint Paul, Minn.	66	+ 5	−2.9	1.16	+1.22	+1.11
La Crosse, Wis.	66	+ 7	−2.3	1.05	+ .15	+5.43
Dubuque, Iowa.	67	+ 7	−2.2	1.17	+ .45	+7.70
Davenport, Iowa.	69	+ 5	−2.3	1.05	+ .60	+8.44
Des Moines, Iowa.	69	+ 5	−3.3	1.53	− .58	+4.38
Keokuk, Iowa.	70	+ 7	−2.3	1.19	−1.04	+5.31
Springfield, Ill.	70	+ 6	−2.6	1.38	−1.16	+4.82
Cairo, Ill.	74	+ 4	−1.2	1.14	−1.02	+ .58
Saint Louis, Mo.	73	+ 7	−2.4	1.25	− .82	+5.07
Missouri Valley.						
Springfield, Mo.	72	+ 5	−3.5	1.37	− .61	+3.76
Kansas City, Mo.	73	+ 6	−3.6	1.29	−1.14	+6.94
Concordia, Kan.	71	+ 6	−2.9	.96	− .96	+3.70
Omaha, Neb.	70	+ 7	−3.8	1.33	− .49	+5.42
Yankton, S. Dak.	68	+ 4	−2.6	1.00	−1.00	+2.29
Valentine, Neb.	66	+ 3	−4.8	.78	− .42	+5.94
Huron, S. Dak.	65	+ 2	−3.2	.84	− .34	+5.95
Pierre, S. Dak.	67	+ 1	−3.8	.91	− .87	+3.96
Moorhead, Minn.	63	+ 5	0.0	.98	− .84	+3.01
St. Vincent, Minn	61	+ 6	0.0	.77	+ .06	− .86
Bismarck, N. Dak	63	− 1	−3.3	.93	+ .70	+1.04
Buford, Ft., N. D.	63	− 2	−2.6	.81	− .73	+ .99
Rocky Mt. Slope.						
Havre, Mont.	61	− 7	−2.8	.72	+2.50	+3.54
Helena, Mont.	60	− 8	−3.1	.63	+3.15	+4.20
Spokane, Wash.	62	− 2	−1.0	.46	− .34	+1.69
Salt Lake City	67	+ 7	−2.5	.21	+ .64	− .32
Cheyenne, Wyo.	60	− 1	−3.7	.39	− .39	−2.00
North Platte, Neb	67	+ 2	−4.3	.77	− .77	−1.46
Denver, Colo.	65	+ 3	−3.7	.31	− .31	− .35
Montrose, Colo.	65	− 5	−2.5	.06	− .06	+1.49
Pueblo, Colo.	70	− 1	−3.0	.31	− .31	+ .18
Dodge City, Kan.	71	0	−4.3	.77	− .77	− .91
Abilene, Tex.	77	+ 1	−0.3	.07	− .03	− .92
El Paso, Tex.	80	+ 3	−1.8	.07	− .07	− .70
Santa Fe, N. Mex.	64	− 2	−1.2	.21	− .21	− .04
Tucson, Ariz.	81	−11	−4.1	.00	− .00	+ .07
Pacific Coast.						
Olympia, Wash.	59	− 2	0.0	.37	− .27	− .57
Portland, Ore.	63	− 5	−1.6	.49	− .84	−1.72
Roseburg, Ore.	61	− 5	−1.3	.34	+ .20	+1.00
Red Bluff, Cal.	73	− 6	−2.5	.14	+ .10	.....
Sacramento, Cal.	68	− 8	−2.0	.07	− .07	− .39
San Francisco, Cal	60	− 5	−1.3	.07	− .07	− .13
Los Angeles, Cal.	67	− 7	−1.8	.07	− .07	+ .59
San Diego, Cal.	64	− 4	−1.2	.00	+ .10	− .14
Yuma, Ariz.	84	− 8	−1.0	.00	− .00	+ .27

NOTE.—The current temperature and rainfall for any station may be found by adding the departure to normal when plus (+), and subtracting when departure is minus (−).

U. S. DEPARTMENT OF AGRICULTURE, WEATHER BUREAU.

Weather-Crop Bulletin for the Period from May 28 to June 13, 1892.

Temperature Departures for the period from May 28th to June 13th 1892
U. S. DEPARTMENT OF AGRICULTURE.
Weather Bureau.
Chief.
Shaded portions show excess (+), and unshaded portions deficiency (−) of temperature
Figures show mean daily excess (+) or deficiency (−) of temperature over areas bounded by light lines

U. S. DEPARTMENT OF AGRICULTURE,
WEATHER BUREAU,
WASHINGTON, D. C., June 14, 1892.

TEMPERATURE.

During the period from May 28 to June 13, 1892, the weather was warmer than usual from the Upper Missouri Valley eastward to the Atlantic Coast, the excess of temperature being greatest from the lake region eastward to New England, where the average daily temperature was from 3° to 5° above the normal. In the Gulf States it has been slightly cooler than usual. Very cool weather has prevailed in all of the Rocky Mountain districts, where the deficiencies in temperature range from 5° to 8° per day. On the Pacific the temperature averaged from 2° to 5° below the normal.

RAINFALL.

The rainfall of the above period was excessive in the lower lake region, upper and central Mississippi valleys, and in Florida. It was also above the average in the northern and central Rocky Mountain districts and on the north Pacific Coast. Very heavy rains fell in southern Florida and central Montana during the past week.

Along the Atlantic Coast northward of North Carolina, and from southern Alabama westward to Texas, the rainfall has been much below the average, the deficiencies generally amounting to from one to two inches. Very little rain has fallen in the Upper Missouri Valley, where a decided deficiency for the above now exists.

GENERAL REMARKS.

New England.—Temperature and sunshine above for the past week, and precipitation below average. Continued favorable weather and crops booming; slight damage from frost in central districts on 11th; grass very good, except light in central and southern New Hampshire and Vermont.

New York.—Rainfall and sunshine about average and temperature above. Grass and wheat excellent; Spring crops improving; oats good, but acreage short; tobacco setting well along; corn and potato planting pushed; peaches short crop; apple blight in scattered sections.

New Jersey.—Rainfall excessive, temperature normal, and sunshine below average. Winter and Spring grains continue in fine condition; corn and truck much improved; cultivation retarded; pear midge and rose bugs doing much damage to fruit.

Pennsylvania.—All crops are reported in fair condition, except corn and cherries; wet weather retarded farm work during first part of week, but abundant sunshine of past three days has much improved the prospects; general outlook good.

Maryland.—Conditions, except excessive rains in eastern and southern portions, generally normal. Corn and grass much improved; wheat harvest commenced on Eastern Shore; early planted tobacco stands well; sunshine and warm nights needed.

Virginia.—Temperature averaged about normal; rainfall varied from .25 inch to over 3.00 inches; severe rain and hailstorm caused local damage; wheat, oats, and barley nearly ready for harvest; peanut crop is a bad stand; conditions generally favorable.

North Carolina.—Rainfall generally well distributed and beneficial, but excessive, with slight damage in few places; farm work somewhat retarded. Temperature about norman and sunshine deficient. Harvesting wheat and oats begun; fine wheat crop.

South Carolina.—Rainfall above normal, and temperature and sunshine about average. The cotton crop is growing rapidly, and while it is generally in good condition it is small and at least 10 days late; cotton and other crops have suffered in many sections from excessive rains, but not injuriously, except on low lands.

Georgia.—An excellent week; fairly abundant showers, except in southwest sections, and normal temperature and sunshine throughout the State. Cotton rather backward, but improving; some complaint of lice in southwest Counties; corn small, but promising; wheat and late oats better than expected, and harvest nearly completed; fine crop of peaches beginning to ripen; melons are being shipped, but are rather small.

Florida.—Rainfall badly distributed, excessive in southeast section near coast, about normal in middle portion, and generally deficient in extreme western portion; temperature and sunshine slightly deficient in eastern, and excessive in western portion. Decided improvement in crops.

Alabama.—Temperature about average, rainfall about half inch below and sunshine in excess; weather dry and warm. Corn and cotton greatly needing rain; sugar-cane in south portion suffering for moisture, sweet potato crop in that section reduced; worms in Baldwin County have eaten corn badly, requiring replanting in places.

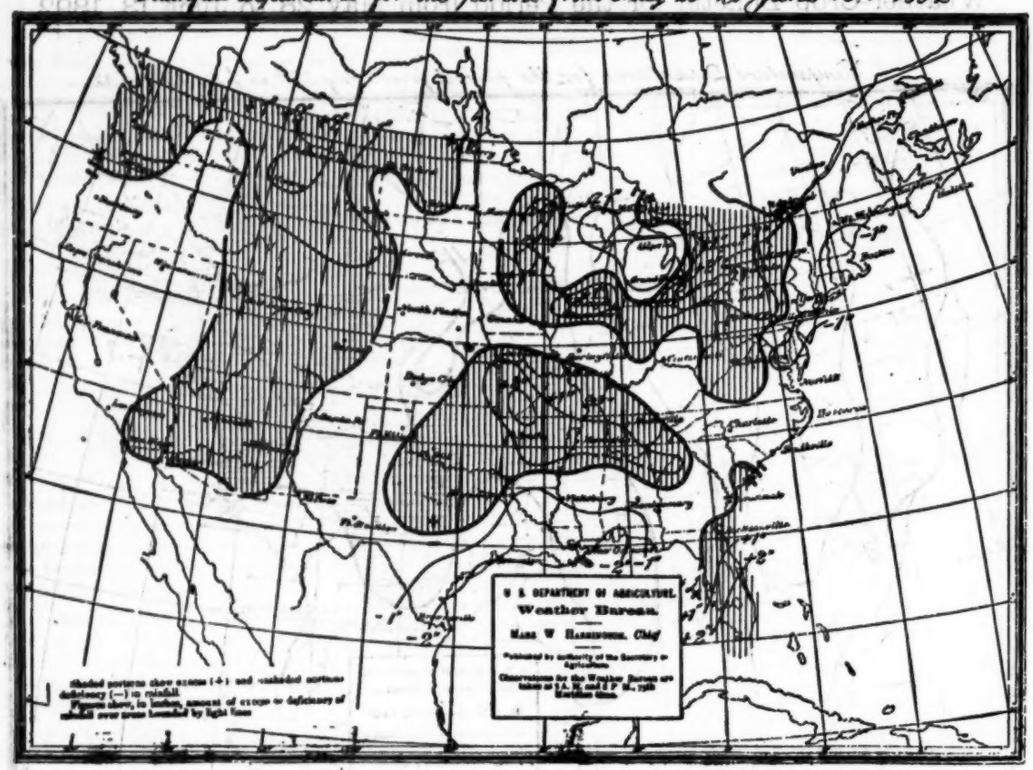
Mississippi.—Temperature and sunshine normal and rainfall generally below. Conditions too dry in south, but favorable in north portion, where rain will soon be needed; destructive wind and hailstorms in central portion on 6th and 7th, with considerable injury to crops.

Texas.—The weather has been very favorable for corn and cotton, except over southwest portion, where more rain is needed; wheat and oat harvest progressing rapidly and both crops very good; corn silking.

Arkansas.—Temperature and sunshine above and precipitation below average. Weather all that the farmer could desire; cotton and corn being rapidly cleaned and improved; wheat being harvested, good yield; oats ripening and promise well; hay crop will be large.

WEATHER CROP BULLETIN, ETC.—Continued.

Rainfall Departures for the period from May 28th to June 13th 1892



Tennessee.—Local showers and warm sunshine during the past seven days were favorable to crops, and corn and cotton much improved; wheat ripening; haying and harvesting commenced; Irish potatoes and garden vegetables abundant; tobacco planting nearly over, stand good.

Kentucky.—Temperature and sunshine excessive and rainfall deficient. Conditions improved all crops; tobacco setting about completed; wheat fine, though some complain of rust; corn looks better, but is small and weedy; oats not up to average.

Missouri.—Weather hot and dry; showers needed, as ground is baking; corn planting will be finished by 15th; wheat and oats improving rapidly; haying commenced; harvesting in 10 days; all fruit declining from early promises; general damage by hail on 8th; considerable land will lie idle.

Illinois.—Temperature and sunshine above and rainfall below average and badly distributed; week warmest and most favorable of season; rapid growth of all vegetation; corn planting nearing completion, some up and doing well; wheat generally good; some harvesting next week in southern portion.

Indiana.—Precipitation deficient, temperature excessive, and much sunshine; very favorable to crops; corn all planted in southern and central portions and early planted growing rapidly; wheat in full head is maturing fast; oats, grass, clover, and pasturage in fine condition.

West Virginia.—Excessive rains retarded cultivation first part of week; latter part warm sunshine developed growth of cereals wonderfully, and they are in good condition; some injury in localities from different causes; grasses doing well; berries plentiful; apple and peach crop very poor.

Ohio.—Rainfall and temperature above and sunshine average. Wheat a rank growth and lodging; oats, clover, and timothy in fair condition; corn good growth, but weedy and needs cultivation; potatoes rotting in places; barley harvest progressing; tobacco being set and growing well; fruit falling off.

Michigan.—Temperature above, rainfall above, and sunshine average. Considerable corn land not yet plowed, ground too wet; wheat headed and looking fine; meadows and pastures very heavy; week generally favorable to all crops.

Wisconsin.—Warm, sunshiny weather has caused rapid growth and marked improvement in all crops; corn and potato planting will be finished this week; low ground in better condition.

Minnesota.—Weather effects on crops during past week have been most beneficial, and all small grains are growing finely; corn continues backward, but is doing well in southeastern Counties, where the cultivator will soon be at work; warm weather needed.

Iowa.—Very favorable week for all crops; corn planting generally completed and cultivating begun, with fair stand; temperature and sunshine above, and precipitation about normal; some excesses reported yesterday.

North Dakota.—Normal temperature and heavy showers have caused rapid progress in growth of all grain; heavy hail on 10th, but no damage; precipitation deficient in southeast section only.

South Dakota.—Temperature and sunshine above and rainfall below average. Excellent growing week; all kinds grain have grown rapidly and look well; pastures good and cattle in fine condition; light rains would be beneficial.

Nebraska.—Week warm and dry and very favorable for corn; ground baked and showers would be beneficial; but little injury to crops from lack of rain and warm winds of the week.

Kansas.—Light rains in northeastern and southeastern Counties; excess of temperature and sunshine; conditions favorable to all crops and farm work, corn growing rapidly; wheat headed out; oats heading; fruits much improved; wheat harvest begun to-day in Barbour County.

Oklahoma.—Temperature and sunshine above and precipitation below average. Weather conditions were very favorable for all crops; wheat harvesting is going on vigorously; oats in most excellent condition; corn and cotton improving; light showers would be beneficial.

Montana.—Temperature and sunshine below, and precipitation considerably above average; streams overflowing in western portion doing great damage to crops on bottom lands; good hay crop assured.

Wyoming.—Precipitation below and temperature about normal. Good week for all crops.

Colorado.—Very little rain, but water for irrigation plentiful; Friday's wind was detrimental; corn is poor except in southeastern section; grain and what fruit is left promise well.

New Mexico.—Cool and extremely dry weather has been bad for crops; plenty of water for irrigation, but rain badly needed for grass on ranges and unirrigated crops.

Utah.—Temperature of week below normal; too cold for corn and vegetables; wheat and hay have grown well; abundant showers in some localities, others dry and hot; irrigation begun; light frosts in exposed places.

Washington.—In western portion low lands continue to suffer from too much rain; grain doing fairly well; good crop of berries, but other fruit poor yield; in eastern portion grain is recovering from hot winds and frost; drouth injuring grain in Adams County.

Oregon.—Cool, stormy weather; more sunshine needed; weather unfavorable to vegetation; crops not so good as last year; rains needed on wheat east of Cascades; berry and hay crops unusually heavy; hop lice developing rapidly.

California.—Cool weather retarded rapid ripening of grain and fruit, but has benefited late crops; hay harvesting about ended, yield good; wheat harvest in full blast the coming week.

MARK W. HARRINGTON,
Chief of the Weather Bureau.

Contrasted.

Carruthers—I can't say that I particularly admire the girl of the period.

Waite—You don't? I guess you never contrasted her with the girl of the interrogation point.

The Old Maid.

Tom—There is one mighty agreeable thing about calling on an old maid.

Jack—What is that?

Tom—She doesn't bore you to death by talking about "old times."

Record of Transfers of Pure-bred American Southdown Stock.

Rhinecliff's Hope, 4882—Levi P. Morton, Rhinecliff, N.Y., to Myron Seely, Spencer, N. Y.

Miss Stanford, 1238, and Minnie Coleman 1278—Uriah Privett & Bro., Greensburg, Ind., to Wm. H. Plass, Silica, Mo.

Nannie, 2600—R. P. Pomeroy, New Castle, Pa., to T. M. Hutchinson, New Wilmington, Pa.

Warren ewe "536," 2384—John Hobart Warren, Hoosick Falls, N. Y., to Walter Cutting, Pittsfield, Mass.

Warren ewe "512," 3714; Warren ewe "528," 3715, and Waren ewe "449," 3713—Levi P. Morton, Rhinecliff, N. Y., to R. W. Hicks, Clinton Corners, N. Y.

Tallula Lass XII., 962; Tallula Lass IV., 954, and Tallula Lass VI., 971—S. E. Prather, Springfield, Ill., to Arthur W. Upson, Warsaw, Ind.

Sue III., 1930—L. M. Crothers, Crothers, Pa., to Richard Phillips, New Waterford, Pa.

Daisy, 4653; Dixie, 4654; Theo., 4657, and Twilight, 4658—Geo. K. Boutelle, Waterville, Me., to Charles French, Solon, Me.

Auxvasse Belle, 4913; Alice B, 4912, and Little Goldie, 4911—H. A.S. Hamilton, Fisherville, Va., to T. P. Hamilton, Auxvasse, Mo.

Florence, 2473, and Frankie, 2474—Geo. McKerrow, Sussex, Wis., to John M. True, Baraboo, Wis.

Dora, 2565—W. A. Jones, Brandon, Wis., to Geo. W. Groesbeck, Elkhorn, Wis.

Boadicia VI., 2606, and Belle of Boskymead VI., 2149—D. W. Smith, Bates, Ill., to S. E. Prather, Springfield, Ill.

Jonas ewe "4A," 2941—John Jackson & Sons, Abingdon, Ontario, Canada, to W. V. Hamilton, Caledonia, N. Y.

Jones ewe "46," 1683, and Jones ewe "43," 1687—G. J. Hagerty & Sons, Hanover, O., to John A. Irion, Gallipolis, O.—S. E. PRATHER, Secretary, Springfield, Ill.

Medicinal Properties of Vegetables.

Spinach has a direct effect upon the kidneys.

The common dandelion, used as greens, is excellent for the same trouble. Asparagus purges the blood. Celery acts admirably upon the nervous system, and is a cure for rheumatism and neuralgia.

Tomatoes act upon the liver.

Beets and turnips are excellent appetizers.

Lettuce and cucumbers are cooling in their effect upon the system.

Onions, garlic, leeks, olives, and shalots, all of which are similar, possess medicinal virtues of a marked character, stimulating the circulatory system, and the consequent increase of the saliva and the gastric juice promoting digestion.

Red onions are an excellent diuretic, and the white ones are recommended to be eaten raw as a remedy for insomnia. They are tonic and nutritious.

A soup made from onions is regarded by the French as an excellent restorative in debility of digestive organs.

THE MARKETS.

TOBACCO.

The May sales of Sumatra tobacco in Amsterdam showed very little tobacco suitable for the American market offering. The crop was very ordinary in character and below the average quantity. The few choice lots brought strongly advanced prices. The news from Cuba is generally unfavorable. Heavy rains have set in in the Remedios district, but the reports are that they will have plenty of tobacco suitable for the United States and German markets.

This is not the case in the Vuelta Abajo, Semi-Vuelta, and Partido districts, which are suffering greatly from lack of rain. They have very little tobacco suitable for our market.

WOOL.

BOSTON, June 11.—The wool market shows no signs of increased animation. There is a fair call for wool on about the old-time basis, but buyers are not pushing the trade in any way, and are certainly not paying any higher prices for wool. The arrivals are heavier from all but the washed-wool sections, and if there is any increase in interest to note it would be in Kentucky and Indiana wools, which have had a greater share of the patronage than heretofore. This is not saying very much, however, as the sales are light. In that section 23c to 6c is paid, and there is a fair amount of buying, notwithstanding that three-eights unwashed combing wools are quoted on this market and sales noted as low as 26c. The same reports come from Texan of high prices and a stiff market yet; notwithstanding, considerable wool has been bought and a great deal comes here on commission account.

The market is waiting, to some extent, to see how the London sales open; but it is questionable if higher prices there will increase values here very much. The general feeling seems to be that prices at close of previous sale will be maintained.

The market here must be characterized as unchanged either in demand or valuation.

Sales of XX Ohio wools are few, but prices are several cents higher than the lowest point reached, because there is little wool to select from. The best for XX is now about 64c clean. No. 1 is quiet and sold in a small way at 53c. Some more new fat sheeps' wool has been reported sold at 19@20c, up to 24c for choice medium.

Less movement in Michigan X is noted, sales being at 25@26c. The best X wools command rather better prices, and the seller has the matter more in his own hand because of the stock.

A fair trade in staple wools is noted, some of the sales new arrivals from Kentucky where prices are still high and work delayed by the heavy rains. Quarter-blood is strong at 25@26c, and considerable ⅜s sold at 26c. Delaines are quiet and quoted at 29@30c for Michigan, and 30@32c for Ohio.

Only a light trade in new Texas wools is noted, as the bulk of the wool is held beyond the manufacturers' reach, and consequently sales are slower than usual. Choice 12 months' still sells in a small way to cost 60c clean, but the bulk of sales are little above old prices. We still quote on basis of 48@50c clean for fine and 43@47c for medium for Fall wools. In Spring wools fine northern, 12 months' growth, sells on a basis of 56@57c, and for eight months' growth, 53@55c. Medium of year's growth is worth all the way from 53@55c, and 50@53c for six to eight months' growth. In Texas heavier buying by Boston houses is noted about on the line of the first prices asked.

Oregon wools have been much quieter. Eastern No. 1 is quoted at 54@56c.; No. 2, at 53@54c.; Valley No. 1, 48@51c., and No. 2, 45@47c, scoured.

California wools are not specially active, yet continue in fair request. The movement in San Francisco for this market is still quite large. We quote in this market, clean, 56@58c for northern free, 12 months, and 54@55c for eight months; 56@58c for southern 12 months and 50@53c for six and eight months. Fall wools are quoted at 45@50c for free and 37@40c for defective.

Pulled wools are quiet and without feature, fs and combings being still scarce. We quote fine A on a scoured basis of 58@62; A, 50@53c; B, 43@45c; C, 30@33c; combing, 45@49c; fine combing, 50@53c; extra, 53@61c.

A heavier trade in Territory wools is noted, but no change in values. Sales are principally of Wyoming and Utah wools. Prices, with few exceptions, are about the same as for old wool. Prices remain comparatively high in the interior, yet freer buying is reported. The range of quotations, scoured, is wide, as follows: Montana fine, 57@59c; fine medium, 54@56c; medium, 52c; Wyoming and Utah fine, 53@57c; fine medium, 52@55c; medium, 49@52c.

Unwashed clothing wools are unchanged. Sales of fine Ohio are noted at 18c and No. 1 at 20c. Unmerchantaple is quoted at 20@22c.

Australian wools have been more freely moved, a considerable portion of crossbreds at about 66@68c clean. Prices are fairly steady, but no indications whatever of any advance, and everyone interested in the London sales. Several sales of carpet wools are reported, but as a general thing the market is quiet and values unchanged.

We quote the selling prices of the market for leading descriptins, as follows:

	Cents.
Ohio and Pennsylvania No. 1 fleece	33a34
Ohio and Pennsylvania X	26a27
Ohio and Pennsylvania XX	28a29
Ohio and Pennsylvania XX and above	29a30
Michigan X	25a26
Michigan, No. 1	32a33
Combing, No. 1	35a37
Combing, No. 2	33a35
Kentucky and Indiana ¼-blood combing	26a27
Kentucky and Indiana ½-blood combing	27a28
Missouri ¼-bloood combing	25a26
Missouri ½-blood combing	26a27
Canada combing	33a34
Delaine, Ohio fine	30a32
Delaine, Michigan fine	28a30
Montana fine	14a17
Montana medium	19a24
Wyoming fine	14a17
Wyoming medium	18a23
Kansas and Nebraska fine	13a16
Kansas and Nebraska medium	16a19
Georgia	25a28
Texas Spring medium, 12 mos	20a22
Texas, Spring fine, 12 mos	18a21
Texas, Spring fine, six to eight mos	17a20
Texas, Spring medium, six to eight mos	21a22
Texas Fall	14a20
Kentucky ¼-blood clothing	24a26
Kentucky ½-blood clothing	26a27
Unwashed fine Ohio and Michigan	17a20
Unmerchantable Ohio	20a21
Unmerchantable Michigan	19a20
Lambs, super pulled	34a40
Super pulled	33a44
Extra pulled	28a34
Canada pulled	28a32
Western super	25a30
California Spring	14a24
California Fall	10a16
Oregon east	15a19
Oregon fancy	20a22
Oregon fine valley	17a21
Oregon medium valley	24a25
Montevideo	27a30
Australian and New Zealand	32a41
Foreign carpet	12a30

PHILADELPHIA WOOL MARKET.

PHILADELPHIA, June 11, 1892.

The market during the last week has continued firm. The wet weather in the West has delayed shipments to some extent, but there have been fair arrivals of new unwashed and territory wools, desirable lots of which have met with fair sale. Manufacturers are taking all the low and quarter-blood wools as fast as they are opened, but though the demand for these wools is urgent buyers will pay no advance. Sellers, as a rule, are meeting the demand on a basis of 26c for quarter clothing and 27c for combing, but these prices are extreme, except for some very choice light-shrinking Virginia combing, which is held at 28c. The fact that quarter-blooods, in the face of the sharp demand and small stocks, have recovered only 1c from the lowest point of the season, shows the difficulty of getting any general advance in wool prices. Dealers expect to maintain current rates on desirable wool, but few talk of any advance, and with increased supplies of new domestic in near prospect and the big foreign supply always within easy reach, buyers are not apprehensive of higher prices.

NEW YORK MARKET.

NEW YORK, June 11.—Good, genuine, all-around activity cannot be found, and in some respects business has been less satisfactory than one week ago. The turn of the month and sudden development of a heated spell are by some operators held responsible for a showing of indifference on the buying side, but those features would have been of very little importance with an actual desire to invest existing among custom. It cannot be said that manufacturers have become indifferent toward the market or expect to gain favors by standing off, for those dealers who have placed stock report no special objection to cost, and customers appeared to take about all the wool wanted for immediate use. In fact, that shows just about the size of the demand, and represents the old-time policy of abstaining from investments beyond cut-and-dried necessities, and ignoring anything that looks at all like speculation.

The receipts during the past week comprise 15,533 bags domestic and 965 bags foreign against 14,720 bags domestic and 1,379 bags foreign for the corresponding week in 1891.

Receipts since Jan. 1 comprise 171,203 bags domestic and 101,009 bags foreign against 152,637 bags domestic and 85,858 bags foreign for the same time last year. This shows an increase of 18,566 bags in the receipts of domestic and an increase of 25,211 bags in the receipts of foreign wool.

COTTON.

BOSTON, June 14.—In yesterday's cotton market, futures opened steady, and closed quiet and steady, with prices two to four points below the previous closing. The sales for the day were 128,000 barrels. The quotations were as follows:

	Opening, June 13.	Closing, June 13.	Opening, June 11.	Closing, June 6.
June	$7 50	$7 50	$7 52	$7 68
July	7 60	7 55	7 58	7 72
August	7 66	7 62	7 66	7 77
September	7 73	7 69	7 73	7 84
October	7 81	7 79	7 81	7 94
November	7 95	7 89	7 92	8 04
December	8 03	8 00	8 02	8 14
January	8 13	8 09	8 11	8 23
February	8 23	8 19	8 21	8 33
March	....	8 28	8 31	8 43

NEW YORK, June 14.—Spot cotton closed quiet and firm, down 1-16c at 7¼c for middling uplands, 7 5-16c for low middling, 6¼c for good ordinary, and 5¾c for ordinary. Sales, 6,170 barrels; stock in New York, 335,321 barrels.

LIVERPOOL, June 14.—Spot cotton is steady, with a fair demand. The quotations are unchanged at 4d for middling uplands. Liverpool futures closed quiet and steady at 4 13-64d for June delivery, June and July, 4 13-64d; July and August, 4 13-64d; August and September, 4 19-64d; September and October, 4 21-64d; September, 4 21-64d; October and November, 4 24-64d; November and December, 4 26-64d; December and January, 4 28-64d; January and February, 4 31-64d.

CHICAGO MARKETS.

CHICAGO, June 14.—The longs were chief sellers of wheat and shorts chief buyers, particularly those who sold the latter part of last week. The buying was also quite good by commission houses. The short interest made through last week's marked decline was large, and was the chief support to the market. Reports are coming in from Kansas of damage to wheat from hot winds.

Corn showed a decline to 44 for July and 43¾ for September. There was good buyers at inside figures by commission houses, and earlier by shorts. The short interest has been large and covering quite liberal.

Oats sold about 2c lower, the result of liberal receipts and in sympathy with other grains.

Provisions again showed great strength and activity in the face of an almost demoralizing decline in all grains.

The opening and closing quotations at Chicago are as follows:

Wheat.	Opening.	Closing.
June	....	$0 80
July	$0 78	79¾
August	79	79¾
September	78¾	80
December	81¾	82¾
Corn.		
June	45¾	47¾
July	44¾	45¾
August	44¾	45¾
September	44	45¾
Oats.		
June	....	30¾
July	29¾	30¾
August	....	29¾
September	27¾	29¾
Pork.		
July	10 22½	10 55
September	10 37½	10 70
Lard.		
July	6 32½	6 40
September	6 47½	6 55
Ribs.		
July	6 40	6 57½
September	6 40	6 62½

WHEAT IN VARIOUS MARKETS.

WASHINGTON, June, 14.—The opening and closing prices of July wheat in various markets were as follows:

	New York.	St. Louis.	Duluth.	Minn.
Opening	87	77¾	79¾	76¾
Closing	87¾	79	80¾	77¾

WASHINGTON PRODUCE MARKET.

Flour—Minnesota Patent Process, $5.25@5.75; family, $4.50@5.00; buckwheat, New York, per cwt., $2.00@2.25; do., Virginia, Maryland, and Pennsylvania, $2.00@2.25; cornmeal, bolted, white, 55@56c.

Grain—Wheat, choice, 95@98c; do., fair to good, 85@92c; rye, 70@80c; corn, yellow and H. M., 55@57c; do., white, Nos. 1 and 2, 56@57c; do., mixed, 54@55c; do., ear, per barrel, $2.60@2.65; oats, Western, white, No. 2, 40@41c; do., mixed, No. 2, 36@37c.

Mill Feed—Bran, Western, per ton, $15.00@17.00; middlings, white, per ton, $15.50@17.00.

Hay and Straw—Timothy, choice, $15.00@15.50; clover, $13.00 to $13.50.

Butter—Creamery, Elgin, fancy, 20@21c; creamery, 15@18c; fancy creamery print, 22@25c; Virginia and Maryland, dairy packed, choice selections, 12@13c; do., good to prime, 10@12c; print, 12@13c; haulers' stock, 9@10.

Cheese—New York State factory, new, 10¼@11c; Western factory, 10@10¾.

Eggs—17c; strong.

POULTRY AND GAME.

Chickens, Spring, large, live, 20 to 22; hens, 11 to 12; ducks, 8 to 10; young, 15 to 17; geese, live, per pound, 6 to 7.

VEGETABLES.

Cabbage, new, per barrel, 50 to 75; lettuce, per barrel, $; potatoes, New York, per bushel, 40 to 45; new, prime, $2 to $2.50; do., Maryland and Virginia, per bushel, 40; tomatoes per crate, Florida, $2 to $3; beans, white, New York, mediums, $1.95 to $2; lima beans, per pound, 3½c to 4c; black-eyed peas, per bushel, 90c to $1.

Dried Fruits—Evaporated apples, $4 to $5; peaches, choice, $6 to $7.

Green Fruits—Apples, fancy table, per barrel, $5 to $6; do., choice, $3 to $3.50; oranges, $3 to $4.50; lemons, Cicily, per box, $2.50 to $5; strawberries, per quart, 7c to 13c.

Cured Meats and Dressed Stock—Ham, country, sugar-cured, 9c to 10c; lard, country, bright and clean, 7c to 7½c.; do., butchers' refined, 7½c. hogs, dressed, large and neat, 5½c to 5½c; do., small and neat, 6c to 6½c; do., rough, 3½c to 4c.

Sundries—Beeswax, 24c to 26c; ℔ flow, 44c; honey, white clover, 1 pound, 10c; feathers, live geese, prime, 45c to 50c; do., common, 25c to 30c; flaxseed, per bushel, $1.40 to 1.50; clover seed, per pound, 13c to 14c; timothy seed, $1.35 to $1.50; vinegar, 10c; peanuts, H. P., fancy per pound, 4½c to 5c; do., farmers', per pound, 3c to 3½c.

BALTIMORE MARKETS.

BALTIMORE, June 15.—Wheat easy; No. 2, red, spot and the month, 83@83¼; July, 83¼@83¾; August, 85¾ asked; stock, 830,790; sales, 99,000. Southern wheat dull; Fults, 84@89; Longberry, 85@90. Corn firm; mixed, spot, 52½@52¾; the month, 52@52¼; July, 51¼@51¾; August, 51 bid; steamer, mixed, 49¼@50. Southern corn—White, easy; 50@53¾; yellow, dull, 52@52¾. Oats quiet and easy; No. 2, white, Western, 40 asked; No. 2, mixed, Western, 38¼@39; Rye, no inquiry; No. 2, 84 asked; Butter firm; creamery, fancy, 19; do., fair to choice, 17@18; do., imitation, 15@16; ladle, fancy, 14; do., good to choice, 13; store packed, 11@12; grass, 11@13. Eggs firm, 17. Sugar firm; granulated, 4¾.

Oregon's Oldest Fruit Bearer.

An apple tree in Oregon City is undoubtedly the oldest fruit-bearing tree in Oregon. The seed from which this tree grew was brought across the plains in 1842 and planted by a brother of the Rev. H. K. Hines, of Oregon City, where it now adorns the grounds occupied by the M. E. parsonage. It was in full bloom this Spring, with the prospects good for a large crop.

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No farmer or farmer's son should be without this watch, which keeps the time so accurately that it needs to be compared with a regulator only once in many months. We have contracted for a large number of these watches, and to make them move quickly we have determined to furnish a chain with each watch. These chains will not be sold separately. They are made of nickel-plated steel and are ornamented with a charm. Thousands of farmers will, of course, wish one of these watches, and our immense supply will probably be exhausted within a few months, so club-raisers and purchasers should allow no time to pass before they try to get one for a club or for cash.

For the present we offer this watch and chain for a club of 10 subscribers and $2.50 added money—$12.50 altogether—or we will send both watch and chain (without the paper) to any address by insured mail for $5.60. With the paper, one year, $6.25.

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It's the curiousest thing in creation,
Whenever I hear that old song,
"Do They Miss Me at Home?" I'm so bothered,
My life seems as short as it's long!
For ev'rything 'pears like adzackly
It 'peared in the years past and gone,
When I started out sparkin' at twenty,
An' had my first neckercher on.

Though I'm wrinkled, older, and grayer
Right now than my parents was then,
You strike up this song, "Do They Miss Me?"
And I'm jest a youngster again!
I'm a-standin' back there in the furries
A-wishin' for evening to come,
And a-whisperin' over and over
Them words, "Do They Miss Me at Home"?

You see, Martha Ellen she sung it
The first time I heard it, and so,
As she was my very first sweetheart,
It reminds me of her, don't you know—
How her face used to look in the twilight,
As I tuck her to spellin'; and she
Kep' a-hummin' that song tel I ast her,
Pintblank, ef she ever missed me.

I can shut my eyes now, as you sing it,
And hear her low answerin' words;
And then the glad chirp of the crickets,
As clear as the twitter of birds:
And the dust in the road is like velvet,
And the ragweed and fennel and grass
Is as sweet as the scent of the lilies
Of Eden of old, as we pass.

"Do They Miss Me at Home?" Sing it lower—
And softer—and sweet as the breeze
That powdered our path with the snowy
White bloom of the old locust trees,
Let the whipperwills help you to sing it,
And the echoes 'way over the hill,
Till the moon boolges out in a chorus
Of stars, and our voices is still.

But oh! "They's a chord in the music
That's missed when her voice is away!"
Though I listen from midnight tel morning,
And dawn tel the dusk of the day!
And I grope through the dark, looking up'ards
And on through the heavenly dome,
With my longin' soul singin' and sobbin'
The words, "Do They Miss Me at Home?"

—*James Whitcomb Riley.*

The Dude's Burden.

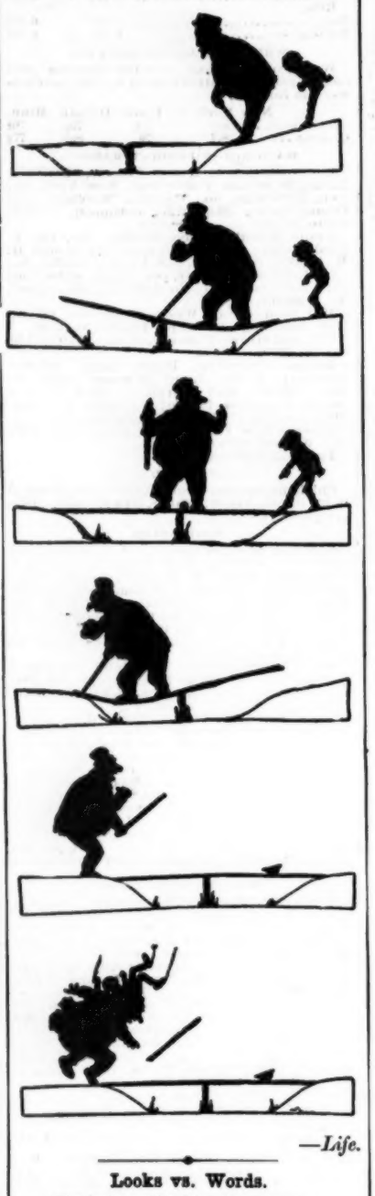
He—Deah me, the days ought to have been made longer; don't you think?

She—I don't know.

He—Why, certainly they ought, you know. How can a fellah dwess four times in 24 hours and have time left to accomplish anything!—*Life.*

NATURE'S LAW.

What Goes Up Must Come Down.



—*Life.*

Looks vs. Words.

The look on the face of a woman
Is the queerest that ever was known
As she praises her neighbor's baby
While she holds in her arms her own.

Professor—One swallow can't make a Summer.

Freshman—But one watchmaker can supply a spring.—*Jeweler's Weekly.*

The Strategic Frog.

Money In It.

"Is there any money in farming?" "Yes," replied the amateur farmer, confidently. "I know there is, because I put some in once, and I'm sure I haven't taken any out yet."—*Brooklyn Life.*

A Modern Theory.

Young Man—Is it true, doctor, that smoking cigarets tend to soften the brain?

Physician—There is a belief to that effect, but with all our boasted modern appliances it can never be verified.

Young Man—Why?

Physician—Because nobody with brains ever smokes them.

The Largest Diamond.

Teacher (in mineralogy class)—Johnny give me the name of the largest known diamond.

Johnny—The ace.

Lots of Sand.

Jack—Harry seems to have a lot of sand in him.

Tom—Yes. One might imagine that he lives solely on strawberries.

Guard Duty.

"Why do you call her mother a mugwump?"

"Because she's a persistent third party."

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There are many other valuable articles upon kindred subjects of vital interest to the agriculturist, copiously illustrated.

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Report of the Chief of the Bureau of Animal Industry:
- Diagram A. Average price of hogs and home consumption of hog products per capita.
- B. Average price of hogs, compared with the total production of hog products per capita, and the price of corn.
- C. Production of corn per capita, and the average price per bushel on farms, December 1.

Report of the Entomologist:
- Plate I. New species of icerya.
- II. The Lefeld fumigator.
- III. Ceratitis capitata and Nephelodes violans.
- IV. Parasites of Nephelodes and Hæmatobia.
- V. Rose chafer and green-striped maple worm.
- VI. State Capitol at Lincoln, Neb., showing trees defoliated by the green-striped maple worm.
- VII. Black scale and Lucilia cæsar.

Report of the Chief of the Silk Section:
- Plate I. Various races of cocoons.
- II. Various races of cocoons.
- III. Various races of cocoons.
- IV. Pruning of mulberry trees, half-standard tree.
- V. Half-standard mulberry tree.
- VI. Pruning of mulberry trees, dwarf.

Report of the Statistician:
- Map I. Corn (maize). Values and yields per acre.
- II. Wheat. Values and yields per acre.
- III. Cotton. Values and yields per acre.

Report of the Microscopist:
- Plate I. Eight edible mushrooms common to the United States. Second series.
- II. Twelve poisonous mushrooms.
- III. Mushroom beds in cellar.
- IV. Mushroom beds in market gardens.
- V. Mushroom house.
- VI. Microscopic researches in food fats.
- VII. Nitrate of silver test of food and medicinal oils.
- VIII. Nitrate of silver test of food and medicinal oils.
- IX. Nitrate of silver test of food and medicinal oils.
- X. Nitrate of silver test of food and medicinal oils.
- XI. Species of mushrooms.

Report of the Botanist:
- Plate I. Ambrosia trifida.
- II. Hieracium aurantiacum.
- III. Linaria vulgaris.
- IV. Cuscuta trifolii.
- V. Plantago lanceolata.
- VI. Cenchrus tribuloides.
- VII. Pennisetum typhoideum.
- VIII. Eragrostis abyssinica.

Report of the Chief of the Division of Vegetable Pathology:
- Plate I. Hollyhock anthracnose.
- II. Anthracnose of cotton.
- III. Ripe rot of grapes and apples.
- IV. Treatment of pear leaf blight (Bordeaux mixture).
- V. Treatment of pear leaf blight (ammoniacal solution, copper carbonate).

Report of the Pomologist:
- Plate I. Wild and cultivated pecans.
- II. Pecan tree, in orchard at Ocean Springs, Miss.
- III. Switzer apple.
- IV. Banquet Strawberry.
- V. Brilliant grape.
- VI. Pineapple field at Lake Worth, Fla.
- VII. Zengi.
- VIII. Tsuru.
- IX. Elæagnus pungens.

Report of Agent in Charge of Artesian Investigations:
- Map I. Map showing results of artesian investigations.

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